TOWN OF WEST HARTFORD
PENSION BOARD

Special Meeting

Scheduled For

Monday

September 26, 2022

at 7:45 am

Room 400 Town Hall

TOWN OF WEST HARTFORD PENSION BOARD
SPECIAL MEETING
Monday, September 26, 2022 at 7:45 a.m.
Room 400 Town Hall

I. Roll Call/Attendance
Guests: Mayor Shari Cantor; Rick Ledwith, Town Manager; Catherine Lombardi, Acting Director of Human Resources; Lori Kearney, Clerk of the Board; Kathy Zager, Senior Personnel Analyst; Mary Fay, Town Council; Chris Kachmar, Fiducient Advisors.

II. Lazaro Guzman, Chair
- A. Opening comments
- B. Election of Clerk of the Board – effective November 1, 2022

III. Chris Kachmar, Fiducient Advisors
- A. Quarterly investment review – Q2 2022
- B. Active versus passive investment strategy

IV. Unfinished Business
- A. Continued discussion on valuation service change (biennial to annual)

V. Brittany Bermingham, Town Matters

VI. Lori Kearney, Human Resources Specialist
- A. Meeting schedule for 2022
- B. Status update on MARC pension administration system
- C. Summary of Pension Administration

VII. Formal Actions
- A. Minutes
  1. Approval of the minutes for the virtual regular meeting held on Monday, May 16, 2022.
  "Motion to approve the minutes for the virtual regular meeting held on Monday, May 16, 2022."
  2. Approval of the minutes for the virtual special meeting held on Monday, June 13, 2022.
  "Motion to approve the minutes for the virtual special meeting held on Monday, June 13, 2022."
- B. Pension Administration
  1. Memberships
  2. Terminations and Refunds
  3. Applications for Approval
     - a. Vested interest applications
     - b. Early retirement applications
     - c. Normal retirement applications
     - d. Survivorship applications

  "Motion to approve Pension Administration."

VIII. Adjournment
- A. **"Motion to adjourn."**

Service Change	Fee Impact
Move from biennial to annual pension valuations (note this increase is per the 2022-23 fees in our 2019 proposal)	$18,000
Establishment of reserve fund: obtain fund data from the Town; enhance the pension valuation report to include reconciliation information; expand the long-range pension forecast to include the reserve fund balance and anticipate when it might be drawn upon	1,000
Transmission of details of long-range forecast in a spreadsheet to AI for the dashboard	No charge
Enhancement of valuation report per AL's request to include breakdown of liability gain/loss by source (e.g., quantifying the impact of actual retirements, turnover, mortality, pay increases, COLAs, etc. that differ from what was assumed)	2,000
Reduction in actuarial team's time spent on the pension census data if the data is coming from the MARC administration system	(2,000)
Enhancement of MARC offering to provide full administration services by Milliman personnel rather than Town personnel • This is based on Option 2 of our prior quote, with automation of non-standard calculations such as death, disability, and COLAs • With Option 2, Milliman personnel will provide all regular benefit calculations and estimates, as well as death and disability benefits and calculation of post-retirement benefit increases • The administration package includes Milliman's call center as well as the member website and the plan sponsor website • The one-time implementation fee of $48,000 for Option 2 is unchanged; note that payment of the implementation fee can be spread out over 24 months, and the monthly ongoing fee wouldn't begin until the system is live • During the implementation process, we can provide assistance to Lori with benefit calculations on an as-needed basis • As a reminder, our estimated ongoing monthly fee for Option 2 with **Town** personnel performing administration was **$2,750** • Based on about 2,125 plan members, the **increase** in the total estimated ongoing monthly fee for Option 2 with **Milliman** personnel performing administration is likely to be about $750 + $4 x 2,125 = **$9,250** • This means the **total** estimated ongoing monthly fee for Option 2 with **Milliman** personnel performing administration is likely to be about $2,750 + $9,250 = **$12,000**	Increase in monthly fee of $750 plus $4 per member

VI(A)

TO: Pension Board

FROM: Lori Kearney, Human Resources Specialist

DATE: September 26, 2022

SUBJECT: **2022 Pension Board Meeting Dates**

The Pension Board meetings are planned for Mondays at 7:45 a.m.

September 19, 2022 (Virtual) – Cancelled/rescheduled
September 26, 2022 (Special Meeting, In-person, Room 400)
October 17, 2022
November 14, 2022

A virtual regular meeting of the Town of West Hartford Pension Board was held on Monday, May 16, 2022 at 7:45 a.m.

Members of the public may view the meeting on YouTube and www.whctv.org.

The meeting was called to order at 7:47 a.m.

I. Roll Call/Attendance

Pension Board Members: Chair Lazaro Guzman, Commissioners Alan Lebow, Perry Salonia, Brittany MacGilpin, and Peter Privitera, Director of Financial Services.

Participants/Guests: Mayor Shari Cantor, Rick Ledwith, Town Manager, Chris Kachmar, Fiducient Advisors, Lori Kearney, Human Resources Specialist, Cathy Lombardi, Acting Director of Human Resources, Yelena Pelletier and Becky Sielman, Milliman.

Absent: Mary Fay, Town Council

II. Chair's Opening Comments

A. Review of rules of decorum and procedure for the virtual meeting in accordance with Governor Lamont's Executive Order #7B permitting municipalities to conduct public meetings virtually during the COVID-19 pandemic.

B. Lori Kearney named Clerk of the Board

III. Peter Privitera with Becky Sielman and Yelena Pelletier, Milliman

A. Valuation

The July 1, 2021 valuation is the first valuation with the addition of the pension obligation bond proceeds. The Town conducts a full valuation every odd numbered year. During even numbered years, an interim valuation is done. A lot of movement in the last two year period: 100 individuals retired, 52 left active status (and vested or accepted a refund), 119 new employees entered the plan, and 86 retirees died. Research conducted by the pension division identified 14 contingent annuitant beneficiaries who had died. They were removed from liability resulting in $130,000 in saved liability. The plan's active members totaled 794. In pay status, there were 1,061 retirees, 35 disabled retirees, and 149 beneficiaries. Approximately $38 million paid out in benefits annually. 2021 was a bright spot in assets with returns of 30.34% on pension plan investments. The asset balance has more than doubled with the issuance of the POBs to just under $323 million dollars. The asset smoothing technique is used to smooth market volatility; will continue to do the 5 year asset smoothing to control volatility of Town's contribution to the plan. The interest rate assumption – what the portfolio is expected to earn over a long term horizon – is at 6.61% this year (2019 – 6.5%). In conjunction with the POBs, a conservative assumption of 6.25% was used in that analysis. This year's valuation reflects the 6.25% interest rate assumption, lower than long term expected earnings for the portfolio. The analysis assumes investments are entirely passive and no margin has been built in for additional returns that might be achieved with actively managed funds. Liabilities climbed between the last interim valuation in 2020 and 2021. Milliman recommends full valuations every year to accurately measure the $600 million liability. Accrued liabilities were an estimated $531 million in 7/1/2020 and increased to an actual of $602 million as of 7/1/2021. The increase in liability is largely due to the drop in interest rate from 6.99% to 6.25%. The issuance of the POBs almost eliminated the unfunded accrued liability. As of 7/1/2021, funded ratio at 98.5%. Plan replaced past service cost with hard debt service from POBs. Milliman has incorporated the change in the Town's funding policy in its analysis. If the plan gets overfunded, the Town agreed to continue paying full normal cost until such time when the funded ratio is more than 150% in order to build up a cushion against adverse experience to provide more budgetary stability. Additionally, the Town took last year's ADC ($26.9 million) and put it in a reserve fund. The reserve fund will be used to pay a portion of the ADC in years where adverse market performance causes the ADC to go up more than 5%. The Town has built in several layers of protection to protect the operating budget from too much volatility in pension contributions.

B. MARC pension administration system

MARC is a pension administration system developed by Milliman in 1991 that provides administrative staff with enhanced and modernized tools to improve accuracy and efficiency. It is a calculation system coded with the specifics of a Town's pension plan and benefit calculation. MARC can handle all administrative tasks including pension estimates and final benefit calculations as well as act as a repository for all information related to the pension plan (e.g. SPD, copies of QDROs, and completed retirement applications). Data is fed from the payroll system to the MARC system. Support is provided by a dedicated team in Milwaukee. A member website permits employees to calculate their own pension benefit estimates and what-if scenarios. A self-service feature permits retirees to update tax withholding status, address, and direct deposit banking information. MARC is continually updated with payroll feeds, and allows for on demand data and reporting exports. Two purchasing options: 1) full system functionality excluding automating non-standard calculations (death, disability, retiree cost of living adjustments) with a $36,000 one-time implementation fee plus an estimated $2,500 per month licensing fee and 2) full system functionality including automating non-standard calculations (death, disability, retiree cost of living adjustments) with a $48,000 one-time implementation fee plus an estimated $2,750 per month licensing fee. Historically, two full-time staff members manually calculated pension estimates for Town and Board of Education employees, with one staff member's salary charged fully to the pension fund. This staff member (Paula Knake) resigned which has prompted a closer look at the MARC system and the enhancements and savings it could bring to the Town. If the Pension Board approves licensing the MARC system, it will take approximately 9 months to implement. During this time, Cathy Lombardi indicated that the vacant position would need to be filled with a full time employee. After implementation, it is anticipated that this full time employee will have reduced pension administration responsibilities but may take on a different role in the Human Resources Department. The allocation of the position would shift and would not be fully funded by the pension plan. Alternatively, licensing the MARC system may result in the need to hire only a part time staff member to focus solely on pension administration. Thus, some cost savings could be realized in staffing. By implementing this system, it would be simpler and quicker to transmit census data to the actuaries for valuation. There are potential cost savings from Milliman; not on actuarial fees but perhaps "horse trading" on the cost of the data needed for the pension dashboard. Should the Pension Board approve the implementation of the MARC system with Milliman, there would be separate contracts for actuarial services and pension administration services; they would not be tied to one another. A Special Meeting will be scheduled for June to discuss the MARC system in greater detail. Aside from the improved employee experience the MARC system's member website represents for employees, the Pension Board is looking for quantitative data on costs savings to support pursuing this system. Peter will work with Cathy and Becky to quantify the savings (e.g. FTE staffing and valuation savings) for that meeting.

IV. Chris Kachmar, Fiducient Advisors

A & B. Quarterly Investment Review/Pension Plan – Portfolio Composition Discussion

Capital markets – tough calendar year to date due to changing federal policy and the situation in Ukraine. Town portfolio as of 3/31/2022 at $467,936,093. Asset allocations are close to target and consistent with the Board's intention. Four of six dollar cost averaging exercises have been completed. In March, we broke up and two tiered the $54 million contribution into two segments, one early in the month and the other later in the month due to volatility. The next DCA is scheduled for June. Did the Board wish to replicate the construct used in March and break the next fund insertion into two segments to control the entry point as a result of continued volatility? Fiducient Advisors endorses a two tiered contribution of the next $54 million to mitigate volatility, with one contribution occurring early in June and the other later in June. One manager on watch, Harbor Diversified International. Otherwise, balance of roster is in good working order. Discussion of active versus indexed funds. There is no right answer. We can reduce the management fees of the plan and the risk by going to more

indexed funds. However, that can risk the incremental return over the longer term. The Board will review asset classes and take a fresh look at the balance between indexed and active funds at the September meeting. Fiducient Advisors will prepare an active and indexing comparison for that meeting. **Motion by Chair Guzman to accelerate half of the June 30th DCA amount for investment in the next week with the other half to be invested at the previously scheduled time at the end of June.**
Peter Privitera – yes
Brittany MacGilpin – yes
Al Lebow– yes
Perry Salonia – yes
Lazaro Guzman– yes
All in favor. Motion passed.

V. Brittany MacGilpin, Town Matters
No items to report.

VI. Lori Kearney, Human Resources Specialist
A. Meeting schedule for 2022
Remaining meetings in 2022: September 19, October 17, November 14.
Mayor Cantor stated that the state legislature has granted municipalities the ability to hold meetings in a hybrid fashion permitting flexibility. We will determine the September meeting format a few weeks prior to the meeting date. A Special Meeting will be scheduled in June to discuss the MARC system.
B. Summary of Pension Administration

VII. Formal Actions
A. Minutes
1. Approval of the minutes for the virtual regular meeting held on Monday, February 28, 2022
Motion by Chair Guzman for approval of the minutes for the virtual regular meeting held on Monday, February 28, 2022. It was unanimously voted to approve the minutes for the virtual regular meeting held on Monday, February 28, 2022.
B. Pension Administration
Motion by Chair Guzman for approval of the items under Pension Administration. It was unanimously voted to approve the items under Pension Administration.
1. Memberships
BOE – Maria Costs, Maria Nieves, Kaylie Schiltz, Joshua Seymour, Marcus Ubarry.
Town – Conor Brown, Anthony Chachulski, Christopher Hemstock, Skylar Lang, Cole Magnuson, Nathaniel Michaud, Karoli Rodriguez, John Selmer, David Strong, Benjamin Watkins
2. Terminations and Refunds
BOE – Laurie Rosano, Mary Ellen Smith, Izaias Pontes, Kimberly Neild, Molly Weyers.
Town – Benjamin Van Schaack, Matthew Hart, Rodrigo Pinto
3. Applications for Approval
a. Vested interest applications
BOE – Mary Coons
Town – Irene-Lee Klein
b. Normal retirement applications
BOE – Kathleen Hickey
Town - Steven Ciarleglio, Kerry Cloukey, Gregory Hill, Walter Topliff Jr.
c. Survivorships applications

Town – Joanne Noonan (survivor of John Noonan, Fire), Myrtle Suber (survivor of Elijah Suber, Police), Karen Wilson (survivor of William Wilson, Fire)

C. Invoices for Consideration

1. Milliman

   a. Invoice for July 1, 2021 actuarial valuation services in the amount of $7,903.75 and for consultation services regarding QDRO and contingent annuity factors in the amount of $626.25. Invoice date 5/2/2022.

   b. Invoice for July 1, 2021 actuarial valuation services in the amount of $18,000 and for services related to the actuarially determined contribution in the amount of $660. Invoice date 5/2/2022.

   Questions on actuarial valuation fees charged by Milliman. Does Milliman charge an hourly rate or fixed rate for valuation services? Why are there two separate invoices? What is the contracted dollar amount Milliman charges the Town for the valuation? What are basic valuation charges and what were the charges incurred for the extra work? Valuation is at a fixed rate unless there is something done over and above what is in the contract. Then it would be an hourly rate for the service. Milliman bills us in increments as they move toward completion of the valuation. The Town is billed for the bulk of the valuation when it is completed. Peter will review the contract and the invoices and respond to the Board.

2. Silvercrest

   Invoice for management fees for quarter ending 6/30/2022 in the amount of $37,081. Invoice date 4/18/2022.

Motion by Chair Guzman to approve for payment all items under Invoices for Consideration. Peter will provide the Board with more information on the Milliman valuation charges, and if an adjustment is necessary, Milliman will process. It was unanimously voted to approve for payment all invoices listed under Invoices for Consideration.

VIII. New Business - None

IX. Adjournment

Motion by Chair Guzman to adjourn the meeting at 10:08 a.m. It was unanimously voted to adjourn.

Attest:

Lori Kearney

Lori Kearney, Clerk of the Board

A virtual special meeting of the Town of West Hartford Pension Board was held on Monday, June 13, 2022 at 7:45 a.m.

Members of the public may view the meeting on YouTube and www.whctv.org.

The meeting was called to order at 7:45 a.m.

I. Roll Call/Attendance

Pension Board Members: Chair Lazaro Guzman, Commissioners Alan Lebow, Perry Salonia, Brittany MacGilpin, and Peter Privitera, Director of Financial Services.

Participants/Guests: Mayor Shari Cantor, Rick Ledwith, Town Manager, Lori Kearney, Clerk of the Board, Catherine Lombardi, Acting Director of Human Resources, Yelena Pelletier and Becky Sielman, Milliman.

Absent: Mary Fay, Town Council

II. Chair's Opening Comments

A. Review of rules of decorum and procedure for the virtual meeting in accordance with Governor Lamont's Executive Order #7B permitting municipalities to conduct public meetings virtually during the COVID-19 pandemic.

III. Lori Kearney, Clerk of the Board

A. Meeting schedule for 2022
Remaining meetings in 2022: September 19, October 17, November 14.
Still to be determined whether those meetings will be in-person or virtual.

IV. Peter Privitera/Catherine Lombardi/Milliman

A. Further discussion of MARC pension administration system

With the resignation of Paula Knake, a primary contact person for Town and BOE retirement benefits, Milliman's MARC pension administration system is being reviewed. Considerations include the costs and benefits of implementation, and what if any savings there would be to the Town in staffing or valuation expenses. This has led to a discussion of moving from biennial valuations to annual valuations.

Option 1: $36,000 base model – system would cover majority of calculations but not COLAs, employee deaths, or disability retirements. Monthly maintenance fee of $2,500. Town pension staff would use the MARC system to perform pension calculations.
Cost of Option 1:
$36,000 – one-time implementation fee
$2,500/mo maintenance x 12 = $30,000/yr maintenance + cost of employee at the Town

Option 2: $48,000 – system would cover all calculations including COLAs, employee deaths, and disability retirements. Monthly maintenance fee of $2,750.

Choice a – Town pension staff would use MARC to perform pension calculations.
Choice b – Milliman staff would use MARC system to perform pension calculations, handle all interactions with members, and operate call center. Cost is based on the number of members in the plan. Additional cost estimated at $9,250 per month ($750 per month plus $4 per member).

Cost of Option 2a:
$48,000 – one-time implementation fee
$2,750/mo maintenance x 12 = $33,000/yr maintenance + cost of employee at the Town

Cost of Option 2b:
$48,000 – one-time implementation fee
$2,750/mo + $9,250/mo = $12,000/mo maintenance x 12 = $144,000/yr maintenance

Employees can do individual pension estimates and what-if scenarios under all options. Benefit statements can be produced for members with all options. Refunds of pension contributions would be driven through the MARC system. The implementation period would be approximately 9 months.

Town pension staff performs approximately 400 pension estimates annually. This includes final retirement calculations for approximately 50 – 60 retirees each year. The MARC system would permit employees to perform their own estimates and reduce the number of calculations performed by pension staff to the roughly 50-60 final retirement calculations per year.

Implementing MARC would result in a $2,000 reduction in Milliman's valuation fee (due to the census data being more readily accessible from the MARC system rather than through the Town's Finance Department). It would also offset some of the cost associated with the data needed for Al's pension dashboard model. Cathy Lombardi indicated that Paula's position is funded this fiscal year. The Town has filled her position with a full time employee to handle those responsibilities for that time period. Depending on the decision by the Pension Board, the role of that full time employee may be developed differently in the future with less emphasis on pension administration. If the Board chooses option 1, for example, there would be one full time employee dedicated to pension administration but part of their salary could be allocated to the general fund. Cathy pointed out that the full time employee's salary is less than the annual maintenance cost of option 2b. If West Hartford implements option 2b, Milliman anticipates hiring an additional full time call center employee to handle the increased volume. Phone calls to the call center are picked up by a live representative. Any increases in fees will be built into the contract. The Town can start off with option 1 and then add on functionality in the future, or start with option 2a and move to 2b later. The cost of the system would be paid from the pension fund. The system is subject to an annual security audit to ensure it is secure. The system can require multi-factor authentication to access. The Town would consult with its IT Director prior to the implementation of this system.

Motion by Chair Guzman to proceed with adopting the MARC pension administration system option 1.

Peter Privitera - Yes
Brittany MacGilpin - Yes
Al Lebow - Yes
Perry Salonia - Yes
Lazaro Guzman - Yes
All in favor. Motion carried.

V. Adjournment

Motion by Chair Guzman to adjourn the meeting at 9:32 a.m. It was unanimously voted to adjourn.

Attest:

Lori Kearney

Lori Kearney, Clerk of the Board

TO: Pension Board

FROM: Lori Kearney, Human Resources Specialist, Pension Division

DATE: September 26, 2022

SUBJECT: Pension Plan Membership

In accordance with the definition of employee as stated in Section 30-8 of the Pension Ordinance, I recommend that the following employees of the Town of West Hartford be accepted into the Pension Plan as of the dates listed below:

NEW MEMBERS - PBD				
NAME	**POSITION**	**DOH**	**DOE**	**DEPT**
Aceto, Kristen	Language Facilitator	8/29/2022	11/29/2022	BOE
Andrade, Derek	Police Officer	6/20/2022	9/20/2022	Police
Arroyo, Tyanna	Paraprofessional	5/31/2022	8/31/2022	BOE
Banning, Kristen	Executive Assistant	6/23/2022	9/23/2022	BOE
Barlow, Brandon	Streets Maintainer I	8/15/2022	11/15/2022	Streets
Batayte, Victoria	Paraprofessional	8/31/2022	11/30/2022	BOE
Belfiore, Dustin	Police	5/23/2022	8/23/2022	Police
Biella, Debra	Staff Assistant	8/29/2022	11/29/2022	Police
Brumaghim, Briana	Staff Assistant	8/1/2022	11/1/2022	Assessor
Callahan, Marie	Library Asst.	7/3/2022	10/3/2022	Library
Colon, Isaiah	Fire Fighter	8/15/2022	11/15/2022	Fire
Condon, Kelly	Physical Therapist	8/29/2022	11/29/2022	BOE
Corneau, Lauren	Paraprofessional	8/31/2022	11/30/2022	BOE
DeJesus, Debbie	Paraprofessional	8/31/2022	11/30/2022	BOE
Duford, Kathleen	Paraprofessional	8/31/2022	11/30/2022	BOE
Enriquez, Esteban	Firefighter/Paramedic	5/23/2022	8/23/2022	Fire
Frost, David J.	Heavy Equip Mechanic	8/1/2022	11/1/2022	Public Works
Gilbuena, Marie	Office Operations Specialist	6/6/2022	9/6/2022	Leisure Services
Kent, David	Fire Fighter	8/15/2022	11/15/2022	Fire
Kyle, Jeffrey	Streets Maintainer I	8/29/2022	11/29/2022	Streets
Lacruz, Patrick	Police Officer	5/23/2022	8/23/2022	Police
Miller, Emily	Secretary	8/22/2022	11/22/2022	BOE
Pelletier, Tiana	Asst. Town Clerk I	8/29/2022	11/29/2022	Town Clerk
Pesce, Donato	Economic Development Spec.	8/29/2022	11/29/2022	Town Manager
Peters, Erin	ASL Interpreter	8/29/2022	11/29/2022	BOE
Sadiku, Adnan	Police Officer	5/23/2022	8/23/2022	Police

NEW MEMBERS - PBD				
NAME	POSITION	DOH	DOE	DEPT
Santandreu, Benjamin	Police Officer	5/23/2022	8/23/2022	Police
Shin, Emiko	Paraprofessional	8/31/2022	11/30/2022	BOE
Sigut, Wojciech	Fire Fighter	8/15/2022	11/15/2022	Fire
Sledge, Erica	Finance Analyst	7/3/2022	10/3/2022	Finance
Srebrna, Martyna	Property Appraiser	9/6/2022	12/6/2022	Assessor
Tata, Claudia	HR Specialist	6/20/2022	9/20/2022	HR
Theriault, Eileen	Paraprofessional	9/1/2022	12/1/2022	BOE
Todd, Linda	Paraprofessional	8/31/2022	11/30/2022	BOE
Waltman, Sean	Police Officer	5/23/2022	8/23/2022	Police
West, Sara	Paraprofessional	8/31/2022	11/30/2022	BOE
Winterberger, Ryan J.	Grounds Maintainer	7/24/2022	10/24/2022	Public Works

TO: Pension Board

FROM: Lori Kearney, Human Resources Specialist, Pension Division

DATE: September 26, 2022

SUBJECT: Withdrawals and Terminations

NON-VESTED WITHDRAWALS and TERMINATIONS

Reaffirmation of termination for employees with non-vested rights in accordance with Section 30-28 of the Pension Ordinance:

Name	Hire Date	Termination Date	Gross Refund	Department	Plan
Illona Dubaldo (contributions deducted in error)	10/6/2014	6/30/2022	$109.05	BOE - Paraprofessional	E - waived
Scott Smith	7/6/2021	2/26/2022	$1,812.78	Police	D

VESTED WITHDRAWALS and TERMINATIONS

Reaffirmation of termination for employees with vested rights in accordance with Section 30-28 of the Pension Ordinance.

Name	Hire Date	Termination Date	Gross Refund	Department	Plan
Polly Lavalley	8/24/2014	6/30/2022	$8,101.48	BOE – Secretary	E

VII(B)(3)(a)

Vested Interest - For Approval - Pension Board Meeting September 26, 2022 - Chart #1

Name		Dept.	Yrs of Service	Benefit Pre 62...	Benefit after 62...	Date of Early	Date of Normal	Termination Date
KNAKE	PAULA	HR	6 YRS 7 MOS		$756.11	10/19/2025	10/19/2030	5/6/2022
LANGAN	KATHLEEN	BOE PARA	8 YRS 6 MOS		$189.74	1/15/2024	5/25/2024	6/30/2022

VII(B)(3)(b)

Early Retirements - For Approval - Pension Board Meeting September 26, 2022 - CHART #2

Name		Date of Early	Years of Service	Department	Benefit Before 65	After 65	Status	Plan
DALY	MARY	6/30/2022	12 YRS 5 MOS	BOE - PUPIL SVC		$580.98	LA	B

VII(B)(3)(c)

Normal Retirements - For Approval - Pension Board Meeting September 26, 2022 - CHART #3

Name		Date of Normal	Years of Svs.	Dept.	Benefit - Before 62/65	After 62/65	Status	Plan
AMODIO	THOMAS	3/25/2022	24 YRS 3 MOS	BOE-NUTRITION		$940.74	LA	B
BENDER	WANDA	6/30/2022	15 YRS 10 MOS	BOE PARA		$603.26	LA	B
CLOUKEY	KERRY	3/31/2022	21 YRS. 3 MOS.	POLICE		$8,956.15	LA	D
EPSTEIN	LINDA	6/30/2022	23 YRS 9 MOS	BOE PUPIL SVCS		$1,511.80	LA	B
HALL	MARYANN	5/31/2022	16 YRS 7 MOS	BOE-EXEC ASST		$2,187.56	CA	B
KATZ	MARCIA	6/30/2022	25 YRS 8 MOS	BOE PARA		$1,262.50	LA	B
MARTINELLI	ELLEN	7/5/2022	6 YRS. 10 MOS.	BOE - PARA		$233.74	LA	B
MASON	STEPHEN	6/30/2022	19 YRS 9 MOS	BOE VAN DRIVER		$537.67	CA	B
NEGRON	LEOPOLDO	4/21/2022	20Y	POLICE		$7,589.50	LA	D
PELTON	LANE	6/30/2022	37 YRS 5 MOS	POLICE CLERICAL		$3,986.77	LA	B
PETRONE III	NELSON	6/30/2022	21 YRS 7 MOS	HUMAN RESOURCES		$3,834.34	CA	B
PINTO	ALAN	5/31/2022	17 YRS 1 MO	BOE - CUSTODIAL		$1,200.85	CA	B
RHEAUME	SUSAN	4/8/2022	36Y 5M	COMMUNITY DEV		$4,220.31	LA	B
ROCHELEAU	ERIC	4/8/2022	23Y 5M	POLICE		$10,727.42	LA	D
ROMAN	NICHOLAS	7/14/2022	20 YRS 0 MOS	POLICE		$7,601.41	LA	D
ROWLSON	BARBARA	7/25/2022		50% CA ROBERT		$1,537.42	LA	B
RUNYON	JEFFREY	6/15/2022		100% CA DOROTHY		$158.75	LA	B
THERION	FRANCINE	6/30/2022	30 YRS 10 MOS	BOE NUTRITION		$1,392.56	LA	B

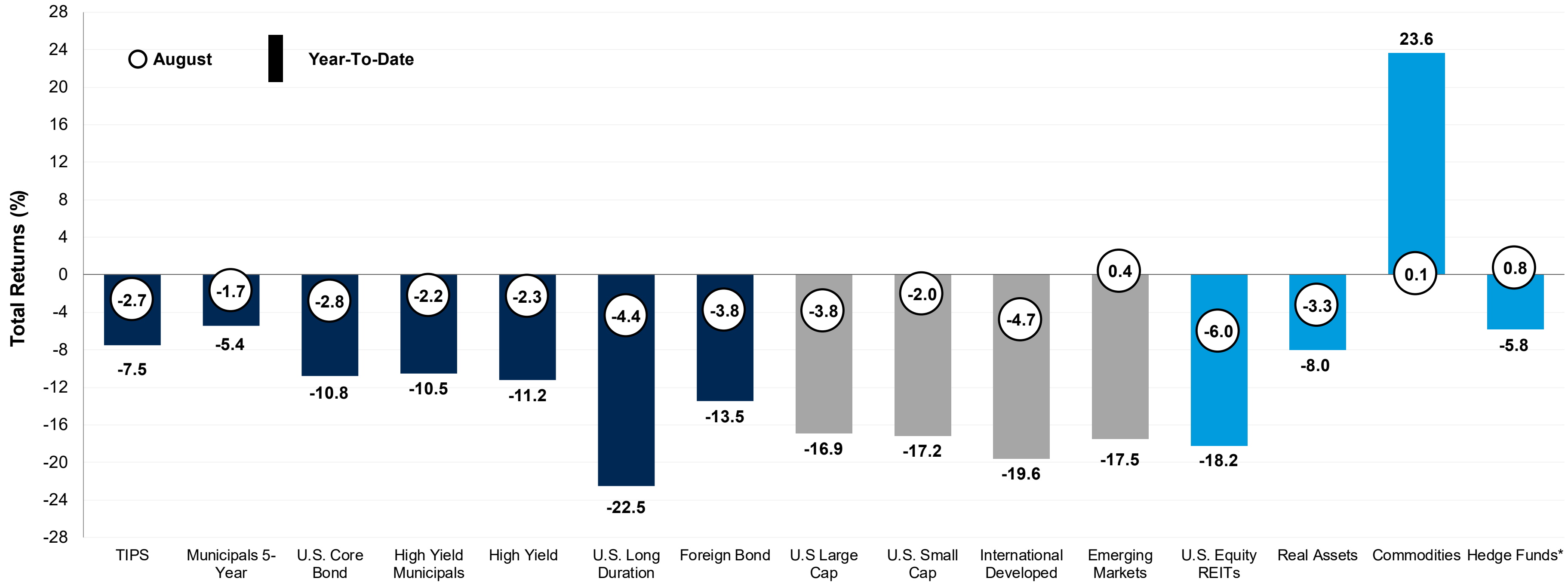
Survivorship Benefits - For Approval - Pension Board Meeting September 26, 2022 - CHART #4

Name		Date of Benefit	Survivor / CA of:	Benefit	Plan
BILAK	BORGHIL	4/20/2022	FRED BILAK	$782.71	C
PLOURD	AUDREY	4/13/2022	RICHARD PLOURD	$866.67	C

Town of West Hartford Pension Plan

Monthly Performance Update - August 2022

Asset Class Performance



Sources: FactSet, Morningstar. As of August 31, 2022. *Hedge fund returns are as of July 31, 2022.

Fixed Income (August)

- Interest rates rose as markets anticipated a continued hawkish stance from the Federal Reserve in its aim to combat inflation. Bond prices were lower as prices generally move inversely to rates.

- Spread sectors, such as high yield, performed slightly better than the broader fixed income market, but were still negative on an absolute basis.

- Foreign bonds were negatively impacted by a strengthening U.S. dollar and lagged domestic markets.

Equity (August)

- Equities sold off following the Fed's Jackson Hole summit as investors digested rhetoric that suggested a firm Fed stance to fight inflation "until the job is done".

- Uncertainty over commodity supplies, as colder months in Europe approach, put negative pressure on the international developed region.

\+ Emerging countries tied to the commodity markets, e.g. Brazil, performed well and helped push EM markets into positive territory in August.

Real Asset / Alternatives (August)

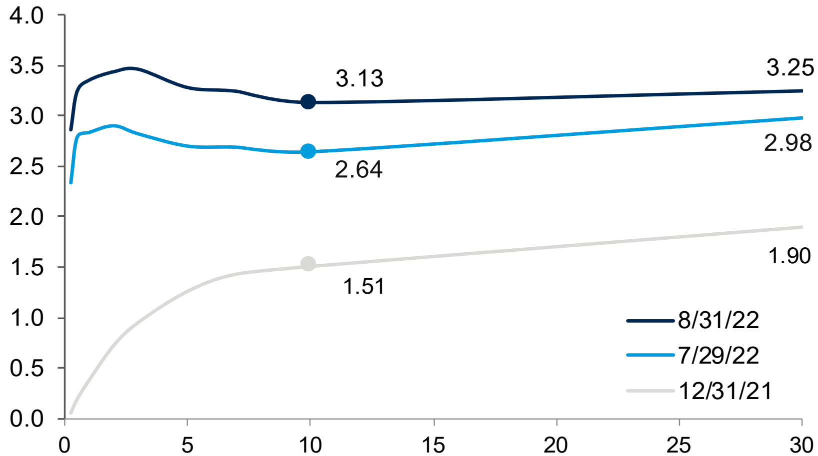
- Higher interest rates were a headwind for REITs in August. In addition, the asset class sold off with the broader risk-off move of equities.

\+ Commodities were one of the few positive asset classes in August. Spiking natural gas prices helped support the energy sector, and agriculture performed well.

Fixed Income Market Update

U.S. Treasury Yield Curve

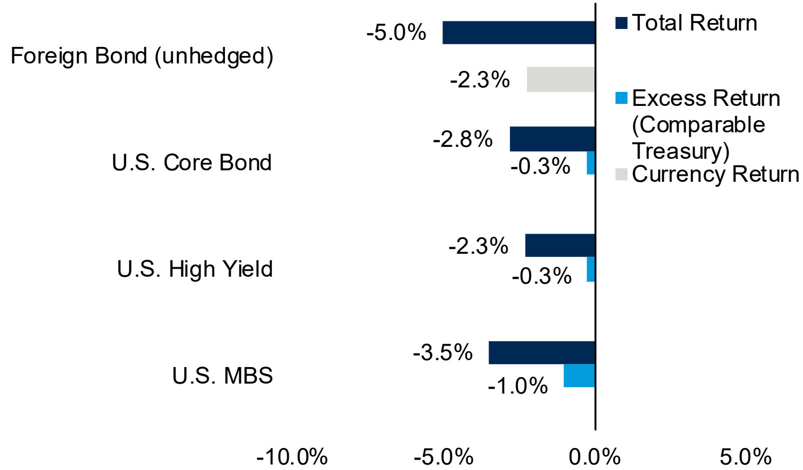
Rates were higher across the yield curve, and it remains inverted. The Fed maintained a hawkish stance coming out of the Jackson Hole summit as it commits to fighting inflation even at the expense of economic growth.



Source: FactSet. As of August 31, 2022.

Index Performance Attribution (August 2022)

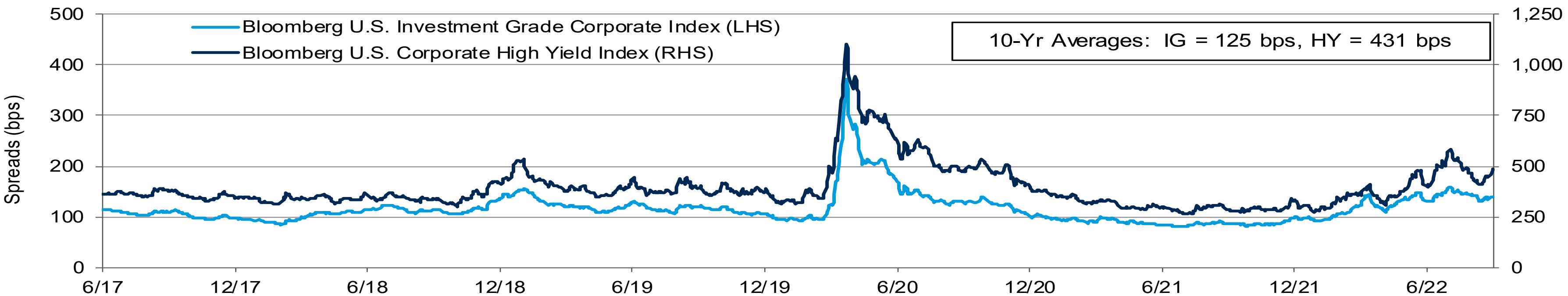
Higher coupons in spread sectors helped offset some of the negative price impact from interest rates. Credit underperformed Treasuries in the risk-off environment on a duration adjusted basis.



Source: FactSet. As of August 31, 2022.

Credit Market Spreads

Corporate bond issuance was relatively light in the month, which provided a technical tailwind for the sector. Investment grade corporate spreads narrowed modestly from the start of the month; however high yield spreads widened slightly with the risk-off sentiment in the market. Spread levels remain above the longer-term averages, but lower than earlier in the year and lower than what has typically coincided with concerns around an economic slowdown.



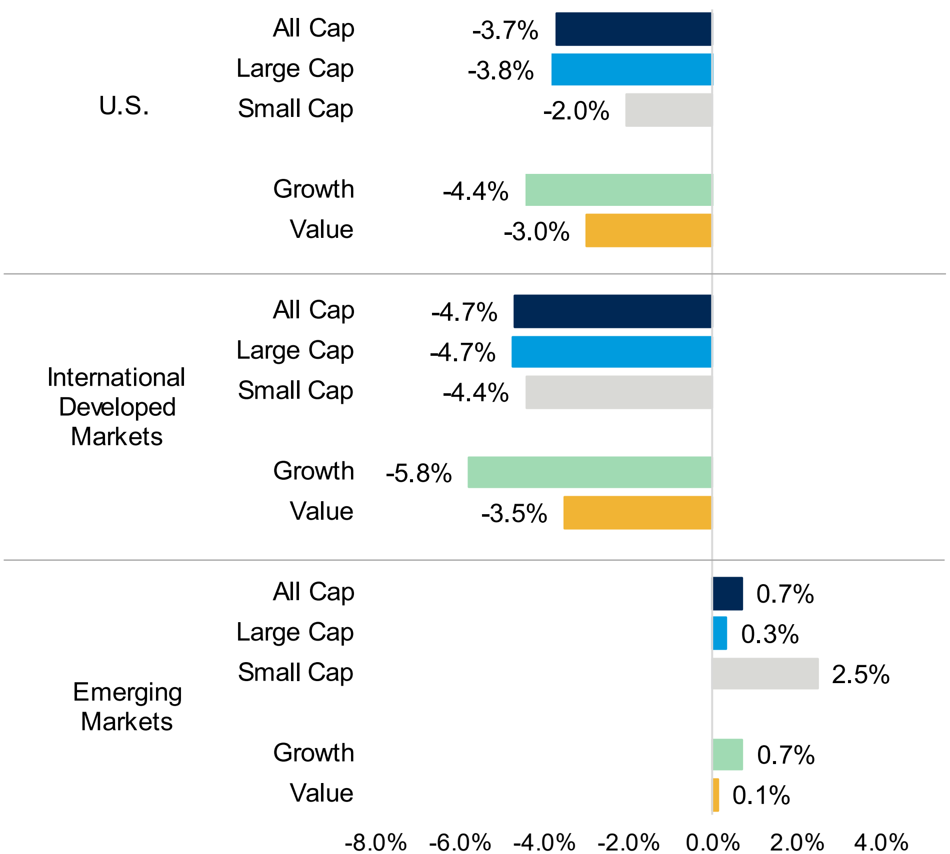
Source: FactSet. As of August 31, 2022.

See disclosures for list of indices representing each asset class. Past performance does not indicate future performance and there is a possibility of a loss.

Equity Market Update

Market Capitalization & Style Performance (August 2022)

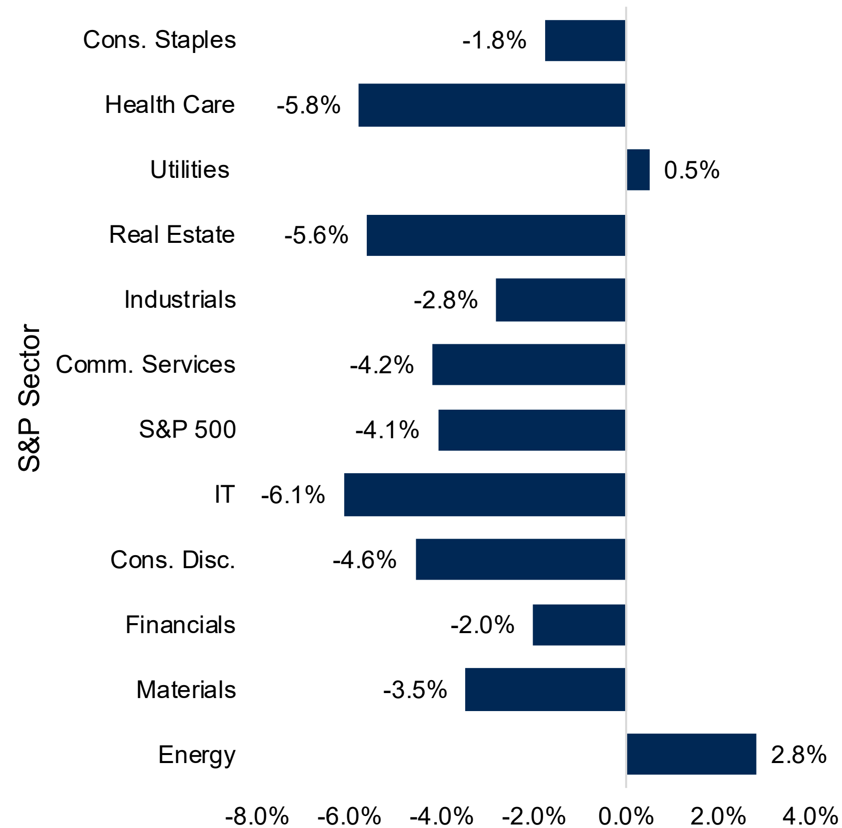
Equities were broadly negative in August. Market leadership once again reversed as value stocks outpaced growth stocks amid higher interest rates and the prospect of recession loomed over investors' minds. Small cap equities were a bit more resilient across regions, and emerging markets benefitted from its exposure to commodities.



Source: FactSet. As of August 31, 2022.

U.S. Equities – Returns by Sector (August 2022)

Despite what has been a relatively favorable earnings season, all sectors in the S&P 500, except for energy and utilities, declined in the month. The move downward occurred in the days following the Fed's Jackson Hole summit, as markets digested the impact of a continued hawkish stance. Energy benefited from rising commodity prices, notably natural gas.



Source: FactSet. As of August 31, 2022.

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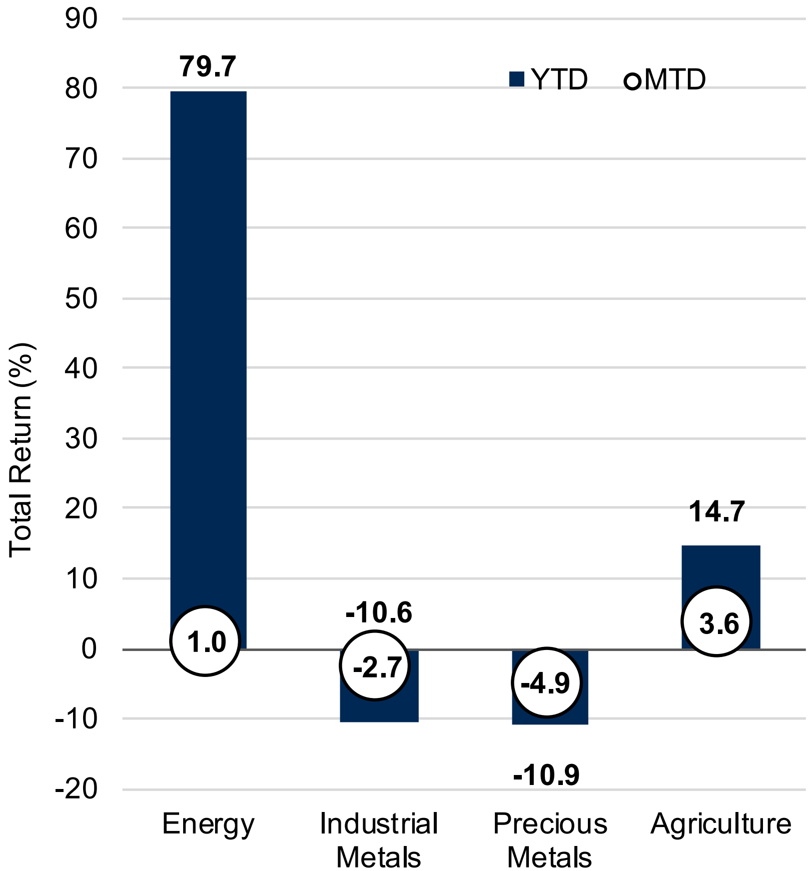
Real Asset Market Update

Real Assets Performance (August 2022)

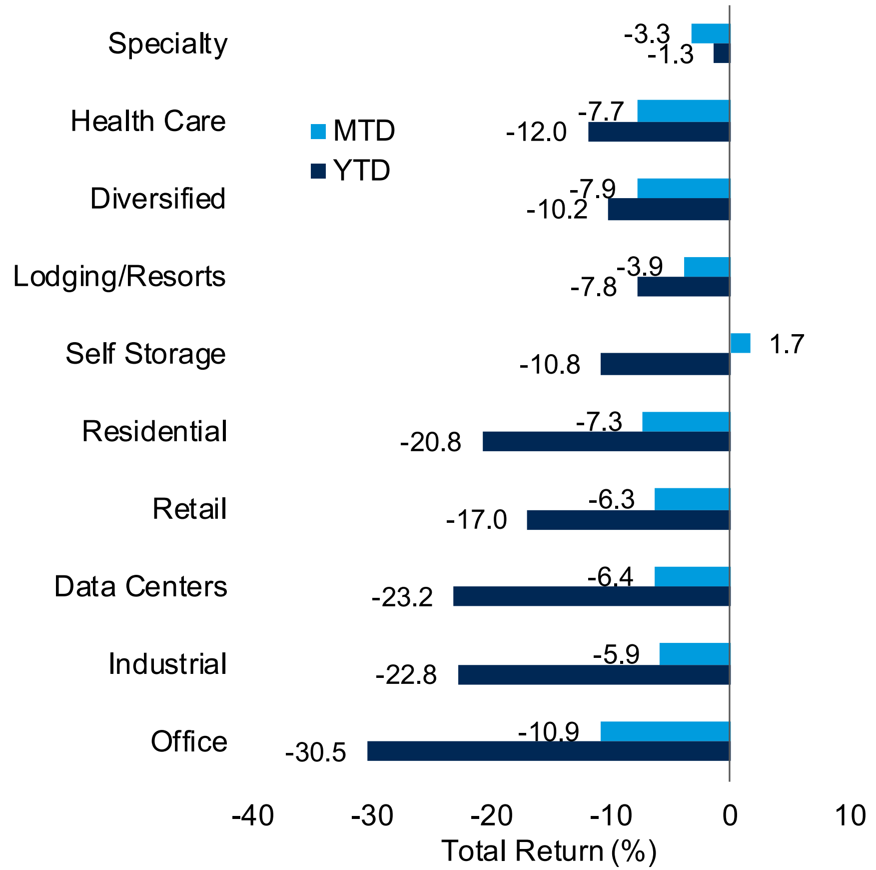
The conflict between Russia and Ukraine continues to have a heavy hand in the commodity markets, as the invading nation and the rest of Europe wrestle with the uncertainty of natural gas supply as we head into colder seasons. Poor harvests due to drought conditions pushed agriculture prices higher; cotton was a notable contributor within the sector.



Source: FactSet. As of August 31, 2022.

REIT Sector Performance (August 2022)

Defensive areas of the REIT market, such as self storage, held up in the broader market sell-off. Areas which are shorter in duration were less impacted by higher interest rates. Office continues to struggle as the working world grapples with the uncertainty of work from home and the future demand for space.



Source: FactSet. As of August 31, 2022.

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Financial Markets Performance

Financial Markets Performance

Total Return as of August 31, 2022

Periods greater than one year are annualized
All returns are in U.S. dollar terms

Global Fixed Income Markets	MTD	YTD	1YR	3YR	5YR	7YR	10YR	15YR
Bloomberg 1-3-Month T-Bill	0.2%	0.4%	0.4%	0.5%	1.1%	0.9%	0.6%	0.6%
Bloomberg U.S. TIPS	-2.7%	-7.5%	-6.0%	2.7%	3.2%	3.1%	1.7%	3.8%
Bloomberg Municipal Bond (5 Year)	-1.7%	-5.4%	-5.8%	-0.3%	0.9%	1.4%	1.5%	2.9%
Bloomberg High Yield Municipal Bond	-2.2%	-10.5%	-10.1%	0.6%	3.5%	4.7%	4.3%	4.4%
Bloomberg U.S. Aggregate	-2.8%	-10.8%	-11.5%	-2.0%	0.5%	1.3%	1.4%	3.1%
Bloomberg U.S. Corporate High Yield	-2.3%	-11.2%	-10.6%	1.0%	2.6%	4.3%	4.5%	6.2%
Bloomberg Global Aggregate ex-U.S. Hedged	-2.6%	-7.8%	-8.7%	-2.4%	1.1%	1.9%	2.5%	3.3%
Bloomberg Global Aggregate ex-U.S. Unhedged	-5.0%	-19.2%	-22.1%	-6.4%	-3.1%	-0.8%	-1.6%	0.9%
Bloomberg U.S. Long Gov / Credit	-4.4%	-22.5%	-22.7%	-5.2%	0.4%	2.4%	2.2%	5.1%
JPMorgan GBI-EM Global Diversified	-0.1%	-14.4%	-19.4%	-5.2%	-3.0%	0.7%	-1.7%	1.9%
Global Equity Markets	**MTD**	**YTD**	**1YR**	**3YR**	**5YR**	**7YR**	**10YR**	**15YR**
S&P 500	-4.1%	-16.1%	-11.2%	12.4%	11.8%	12.5%	13.1%	9.0%
Dow Jones Industrial Average	-3.7%	-12.0%	-9.1%	8.3%	9.9%	12.2%	11.8%	8.6%
NASDAQ Composite	-4.5%	-24.1%	-22.0%	15.0%	14.0%	14.9%	15.7%	11.8%
Russell 3000	-3.7%	-16.9%	-13.3%	11.9%	11.3%	12.0%	12.8%	8.9%
Russell 1000	-3.8%	-16.9%	-13.0%	12.1%	11.6%	12.3%	13.0%	9.0%
Russell 1000 Growth	-4.7%	-23.2%	-19.1%	14.5%	14.8%	15.0%	15.1%	11.2%
Russell 1000 Value	-3.0%	-9.8%	-6.2%	8.9%	7.9%	9.1%	10.5%	6.6%
Russell Mid Cap	-3.1%	-16.5%	-14.8%	9.4%	9.2%	9.7%	11.6%	8.5%
Russell Mid Cap Growth	-3.3%	-25.1%	-26.7%	7.0%	10.2%	10.3%	12.1%	8.9%
Russell Mid Cap Value	-3.1%	-11.8%	-7.8%	9.6%	7.5%	8.7%	10.8%	7.7%
Russell 2000	-2.0%	-17.2%	-17.9%	8.6%	6.9%	8.3%	10.0%	7.2%
Russell 2000 Growth	-0.9%	-22.3%	-25.3%	5.9%	6.7%	7.6%	10.2%	7.7%
Russell 2000 Value	-3.2%	-12.2%	-10.2%	10.4%	6.6%	8.5%	9.5%	6.5%
MSCI ACWI	-3.7%	-17.8%	-15.9%	8.0%	7.0%	8.4%	8.7%	5.1%
MSCI ACWI ex. U.S.	-3.2%	-18.3%	-19.5%	2.9%	1.7%	4.1%	4.5%	1.7%
MSCI EAFE	-4.7%	-19.6%	-19.8%	2.4%	1.6%	3.5%	5.0%	1.6%
MSCI EAFE Growth	-6.1%	-25.8%	-25.8%	2.3%	3.1%	4.9%	6.1%	2.7%
MSCI EAFE Value	-3.4%	-13.3%	-13.9%	1.9%	-0.3%	1.9%	3.7%	0.3%
MSCI EAFE Small Cap	-4.4%	-23.3%	-26.0%	2.8%	1.2%	4.6%	7.1%	3.4%
MSCI Emerging Markets	0.4%	-17.5%	-21.8%	2.7%	0.6%	5.3%	2.9%	1.8%
Alternatives	**MTD**	**YTD**	**1YR**	**3YR**	**5YR**	**7YR**	**10YR**	**15YR**
Consumer Price Index*	0.0%	5.4%	8.5%	4.9%	3.9%	3.1%	2.6%	2.4%
FTSE NAREIT Equity REITs	-6.0%	-18.2%	-10.0%	3.3%	5.6%	7.3%	7.5%	6.1%
S&P Real Assets	-3.3%	-8.0%	-5.6%	3.8%	4.1%	5.0%	4.1%	4.5%
FTSE EPRA NAREIT Developed	-5.1%	-9.0%	-1.7%	2.5%	6.2%	6.1%	7.7%	5.1%
FTSE EPRA NAREIT Developed ex U.S.	-6.9%	-21.0%	-24.0%	-4.7%	-0.5%	1.9%	3.2%	0.7%
Bloomberg Commodity Total Return	0.1%	23.6%	27.7%	17.2%	8.7%	5.2%	-1.1%	-1.4%
HFRI Fund of Funds Composite*	0.8%	-5.8%	-4.1%	4.1%	3.6%	2.8%	3.8%	1.8%
HFRI Fund Weighted Composite*	1.3%	-4.4%	-3.5%	6.5%	5.1%	4.7%	5.0%	3.8%
Alerian MLP	4.0%	28.7%	33.3%	7.5%	3.7%	1.3%	1.7%	5.3%

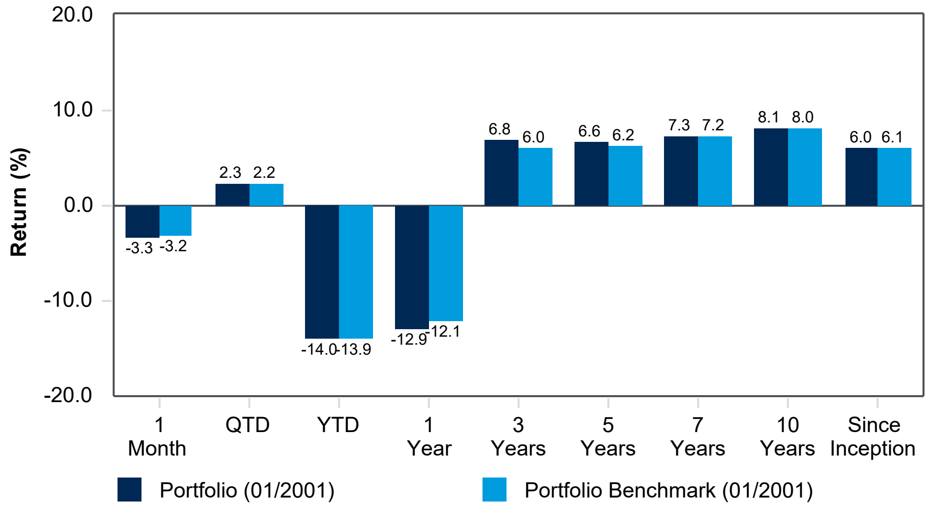
Sources: FactSet, Morningstar. As of August 31, 2022. Periods greater than 1 year are annualized. All returns are in U.S. dollar terms.
*CPI and HFRI returns as of July 31, 2022.

 See disclosures for list of indices representing each asset class. Past performance does not indicate future performance and there is a possibility of a loss.

Portfolio Dashboard

West Hartford Total Pension — **As of August 31, 2022**

Historical Performance



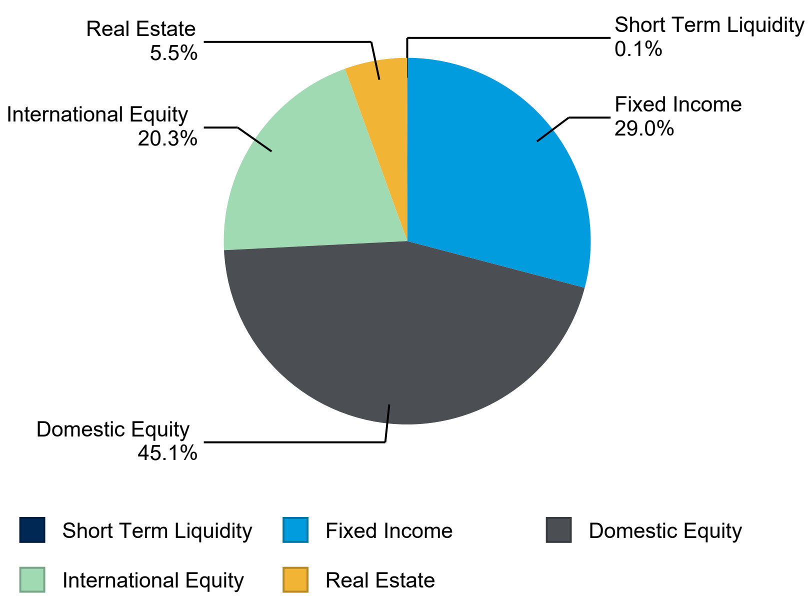
Summary of Cash Flows

	1 Month	QTD	YTD	1 Year
Beginning Market Value	496,586,162	469,366,511	384,591,877	330,182,383
Net Contributions	-	-	162,110,768	210,627,461
Gain/Loss	-16,525,978	10,693,673	-66,642,460	-60,749,660
Ending Market Value	480,060,185	480,060,185	480,060,185	480,060,185

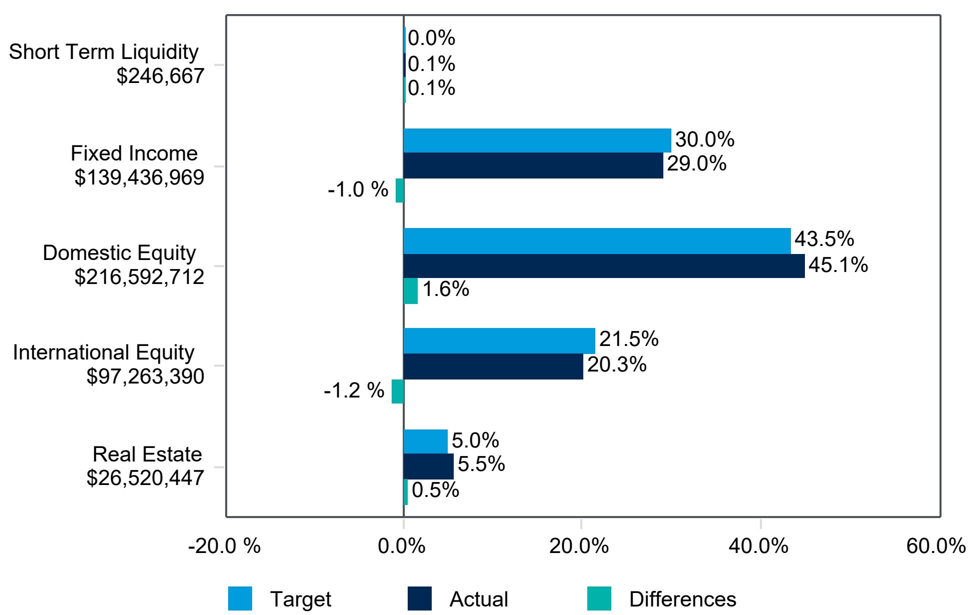
Current Benchmark Composition

From Date	To Date	
04/2018	Present	30.00% Blmbg. U.S. Aggregate, 43.50% Russell 3000 Index, 21.50% MSCI AC World ex USA (Net), 5.00% NCREIF Fund Index - ODCE (net)

Portfolio Allocation



Actual vs. Target Allocations



Asset Allocation

West Hartford Total Pension | As of August 31, 2022

	Asset Allocation ($)	Asset Allocation (%)	Target Allocation (%)	Differences (%)
West Hartford Total Pension	**480,060,185**	**100.0**	**100.0**	**0.0**
Short Term Liquidity	**246,667**	**0.1**	**0.0**	**0.1**
AllSpring Govt Money Market Fund	246,667	0.1	0.0	0.1
Fixed Income	**139,436,969**	**29.0**	**30.0**	**-1.0**
Vanguard Total Bond Market Index Instl	79,286,151	16.5	17.0	-0.5
Metropolitan West Total Return Bond Pl	60,150,818	12.5	13.0	-0.5
Domestic Equity	**216,592,712**	**45.1**	**43.5**	**1.6**
Vanguard Total Stock Market Index Instl	155,912,279	32.5	31.3	1.2
T. Rowe Price Instl Large Cap Value	19,783,301	4.1	4.3	-0.1
Silvercrest Small Cap Value	20,005,713	4.2	4.0	0.2
Pier Capital Small Cap Growth	20,885,698	4.4	4.0	0.4
Equity Holdings	5,720	0.0	0.0	0.0
International Equity	**97,263,390**	**20.3**	**21.5**	**-1.2**
Acadian Non-US All Cap Equity Fund,USD Hedged	23,905,303	5.0	5.0	0.0
Harbor Diversified International All Cap Ret	24,486,469	5.1	5.5	-0.4
Causeway International Value Instl	23,706,595	4.9	5.5	-0.6
Vanguard International Growth Adm	25,165,023	5.2	5.5	-0.3
Real Estate	**26,520,447**	**5.5**	**5.0**	**0.5**
Barings Core Property Fund LP	26,520,447	5.5	5.0	0.5

Manager Performance

West Hartford Total Pension | As of August 31, 2022

	Allocation		Performance(%)							
	Market Value ($)	%	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
West Hartford Total Pension	**480,060,185**	**100.0**	**2.3**	**-14.0**	**-12.9**	**6.8**	**6.6**	**8.1**	**6.0**	**01/2001**
Pension Blended Benchmark			*2.2*	*-13.9*	*-12.1*	*6.0*	*6.2*	*8.0*	*6.1*	
Short Term Liquidity	**246,667**	**0.1**	**0.6**	**1.1**	**1.2**	**0.7**	**1.1**	**0.6**	**0.5**	**06/2010**
90 Day U.S. Treasury Bill			*0.2*	*0.4*	*0.4*	*0.6*	*1.1*	*0.6*	*0.5*	
AllSpring Govt Money Market Fund	**246,667**	**0.1**	**0.6**	**1.1**	**1.2**	**0.7**	**1.1**	**0.6**	**0.5**	**06/2010**
90 Day U.S. Treasury Bill			*0.2*	*0.4*	*0.4*	*0.6*	*1.1*	*0.6*	*0.5*	
Fixed Income	**139,436,969**	**29.0**	**-0.4**	**-11.2**	**-12.0**	**-1.9**	**0.7**	**1.5**	**3.6**	**12/2008**
Blmbg. U.S. Aggregate			*-0.5*	*-10.8*	*-11.5*	*-2.0*	*0.5*	*1.4*	*3.0*	
Vanguard Total Bond Market Index Instl	**79,286,151**	**16.5**	**-0.5**	**-10.9**	**-11.7**	**-2.1**	**0.5**	**1.3**	**1.9**	**11/2010**
Blmbg. U.S. Aggregate			*-0.5*	*-10.8*	*-11.5*	*-2.0*	*0.5*	*1.4*	*2.0*	
IM U.S. Broad Market Core Fixed Income (MF) Median			-0.3	-11.2	-12.1	-1.9	0.5	1.4	2.0	
Vanguard Total Bond Market Index Instl Rank			91	35	37	66	50	56	59	
Metropolitan West Total Return Bond Pl	**60,150,818**	**12.5**	**-0.3**	**-11.8**	**-12.6**	**-1.7**	**0.8**	**2.0**	**1.3**	**05/2015**
Blmbg. U.S. Aggregate			*-0.5*	*-10.8*	*-11.5*	*-2.0*	*0.5*	*1.4*	*1.1*	
IM U.S. Broad Market Core+ Fixed Income (MF) Median			0.1	-11.4	-12.1	-1.5	0.7	1.6	1.3	
Metropolitan West Total Return Bond Pl Rank			89	65	66	58	39	28	51	
Domestic Equity	**216,592,712**	**45.1**	**5.3**	**-16.5**	**-13.6**	**11.6**	**10.9**	**12.4**	**13.4**	**12/2008**
Russell 3000 Index			*5.3*	*-16.9*	*-13.3*	*11.9*	*11.3*	*12.8*	*13.7*	
Vanguard Total Stock Market Index Instl	**155,912,279**	**32.5**	**5.3**	**-17.2**	**-13.7**	**11.8**	**11.2**	**12.7**	**13.7**	**06/2009**
CRSP US Total Market Spliced Index			*5.3*	*-17.2*	*-13.7*	*11.8*	*11.2*	*12.7*	*13.7*	
IM U.S. Multi-Cap Core Equity (MF) Median			4.6	-16.9	-13.5	10.3	9.7	11.5	12.2	
Vanguard Total Stock Market Index Instl Rank			28	57	55	27	20	17	7	
T. Rowe Price Instl Large Cap Value	**19,783,301**	**4.1**	**3.7**	**-6.6**	**-2.9**	**10.3**	**8.6**	**11.2**	**8.2**	**07/2005**
Russell 1000 Value Index			*3.5*	*-9.8*	*-6.2*	*8.9*	*7.9*	*10.5*	*7.5*	
IM U.S. Large Cap Value Equity (MF) Median			2.9	-9.2	-4.9	9.6	8.6	10.5	7.5	
T. Rowe Price Instl Large Cap Value Rank			37	12	24	35	51	27	28	

Manager performance for mutual funds and ETFs is based on NAV and provided by Lipper. Performance for non-mutual fund or ETF investments is based on the returns provided by managers, calculations based on a manager statement, or calculations based on a statement or data from the client's custodian. Funds may include returns of an equivalent share class with a longer return history if period includes dates prior to the fund's inception. Returns are net of fees unless otherwise stated. The fund's inception date represents the first month the client made the investment. Composite performance includes all funds held in the composite since inception. Inception dates for asset class composites reflect the start date at which these returns could be calculated using historical and existing system capabilities and may vary from the inception dates of underlying component strategies.

Manager Performance

West Hartford Total Pension | As of August 31, 2022

	Allocation		Performance(%)							
	Market Value ($)	%	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Silvercrest Small Cap Value	**20,005,713**	**4.2**	**5.4**	**-10.2**	**-5.5**	**10.8**	**7.1**	**-**	**6.6**	**12/2016**
Russell 2000 Value Index			*6.2*	*-12.2*	*-10.2*	*10.4*	*6.6*	*9.5*	*6.2*	
IM U.S. Small Cap Value Equity (MF) Median			5.4	-10.7	-6.9	11.5	6.6	9.3	6.2	
Silvercrest Small Cap Value Rank			50	40	37	65	38	-	39	
Pier Capital Small Cap Growth	**20,885,698**	**4.4**	**6.7**	**-31.0**	**-34.6**	**6.2**	**9.8**	**12.0**	**9.7**	**01/2001**
Russell 2000 Growth Index			*10.2*	*-22.3*	*-25.3*	*5.9*	*6.7*	*10.2*	*6.7*	
IM U.S. Small Cap Growth Equity (MF) Median			7.6	-24.2	-25.3	7.1	9.0	10.6	7.5	
Pier Capital Small Cap Growth Rank			68	89	86	65	42	19	8	
Equity Holdings	**5,720**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**-**	**0.0**	**11/2016**
International Equity	**97,263,390**	**20.3**	**0.4**	**-18.5**	**-20.5**	**7.4**	**4.6**	**6.5**	**8.8**	**12/2008**
International Equity Benchmark			*0.1*	*-18.3*	*-19.5*	*2.9*	*1.6*	*5.0*	*6.2*	
Acadian Non-US All Cap Equity Fund,USD Hedged	**23,905,303**	**5.0**	**4.7**	**-7.1**	**-5.3**	**11.3**	**-**	**-**	**6.9**	**05/2018**
MSCI EAFE US Dollar Hedged Index (Net)			*3.2*	*-7.7*	*-5.0*	*7.4*	*6.5*	*9.3*	*5.7*	
IM International Multi-Cap Core Equity (MF) Median			-0.9	-19.9	-20.6	2.3	1.1	4.7	-0.3	
Acadian Non-US All Cap Equity Fund,USD Hedged Rank			1	1	1	1	-	-	1	
Harbor Diversified International All Cap Ret	**24,486,469**	**5.1**	**-0.8**	**-19.1**	**-20.9**	**2.9**	**1.7**	**-**	**0.6**	**03/2018**
MSCI AC World ex USA (Net)			*0.1*	*-18.3*	*-19.5*	*2.9*	*1.7*	*4.5*	*0.2*	
IM International Large Cap Core Equity (MF) Median			-1.0	-20.5	-20.9	2.3	1.0	4.4	-0.1	
Harbor Diversified International All Cap Ret Rank			41	32	50	41	26	-	26	
Causeway International Value Instl	**23,706,595**	**4.9**	**-3.5**	**-17.1**	**-17.7**	**3.5**	**0.4**	**4.1**	**4.5**	**05/2004**
MSCI EAFE Value Index (Net)			*-1.4*	*-13.3*	*-13.9*	*1.9*	*-0.3*	*3.7*	*3.8*	
IM International Large Cap Value Equity (MF) Median			-2.1	-16.4	-16.9	2.3	0.0	3.6	4.2	
Causeway International Value Instl Rank			70	64	62	21	33	26	23	
Vanguard International Growth Adm	**25,165,023**	**5.2**	**1.3**	**-30.7**	**-36.5**	**8.3**	**6.2**	**9.0**	**4.3**	**03/2018**
MSCI AC World ex USA Growth (Net)			*1.4*	*-23.7*	*-25.3*	*2.8*	*2.8*	*5.5*	*1.3*	
IM International Large Cap Growth Equity (MF) Median			0.0	-24.2	-25.3	3.0	2.2	5.3	1.0	
Vanguard International Growth Adm Rank			17	90	96	3	6	2	11	

Manager performance for mutual funds and ETFs is based on NAV and provided by Lipper. Performance for non-mutual fund or ETF investments is based on the returns provided by managers, calculations based on a manager statement, or calculations based on a statement or data from the client's custodian. Funds may include returns of an equivalent share class with a longer return history if period includes dates prior to the fund's inception. Returns are net of fees unless otherwise stated. The fund's inception date represents the first month the client made the investment. Composite performance includes all funds held in the composite since inception. Inception dates for asset class composites reflect the start date at which these returns could be calculated using historical and existing system capabilities and may vary from the inception dates of underlying component strategies.

Manager Performance

West Hartford Total Pension — **As of August 31, 2022**

	Allocation		Performance(%)							
	Market Value ($)	%	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Real Estate	**26,520,447**	**5.5**	**0.0**	**9.6**	**24.1**	**10.0**	**8.7**	**9.1**	**5.3**	**01/2008**
NCREIF Fund Index - ODCE (net)			*0.0*	*12.0*	*28.3*	*11.7*	*9.6*	*10.2*	*5.7*	
Barings Core Property Fund LP	**26,520,447**	**5.5**	**0.0**	**9.6**	**24.1**	**10.0**	**8.7**	**9.1**	**5.3**	**01/2008**
NCREIF Fund Index - ODCE (net)			*0.0*	*12.0*	*28.3*	*11.7*	*9.6*	*10.2*	*5.7*	

Manager performance for mutual funds and ETFs is based on NAV and provided by Lipper. Performance for non-mutual fund or ETF investments is based on the returns provided by managers, calculations based on a manager statement, or calculations based on a statement or data from the client's custodian. Funds may include returns of an equivalent share class with a longer return history if period includes dates prior to the fund's inception. Returns are net of fees unless otherwise stated. The fund's inception date represents the first month the client made the investment. Composite performance includes all funds held in the composite since inception. Inception dates for asset class composites reflect the start date at which these returns could be calculated using historical and existing system capabilities and may vary from the inception dates of underlying component strategies.

Benchmark History

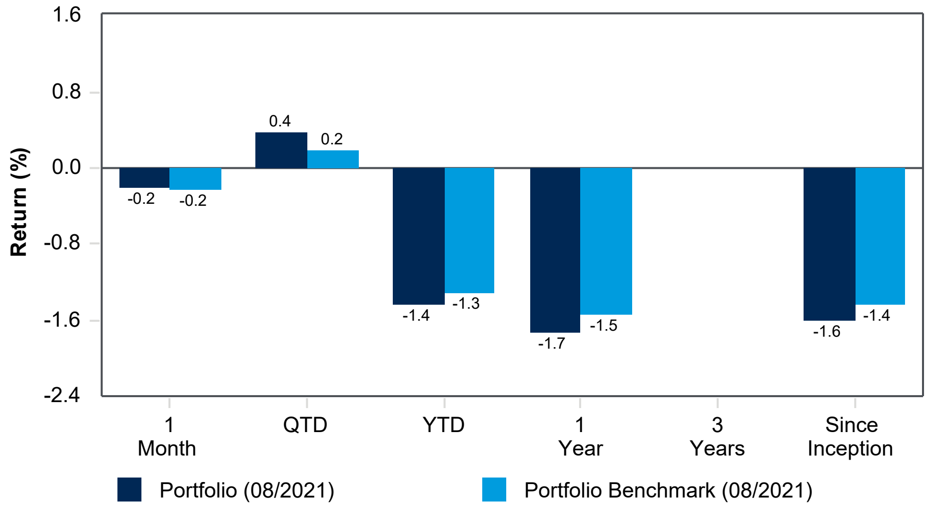
West Hartford Total Pension | As of August 31, 2022

Account Name	From Date	To Date	Benchmark
West Hartford Total Pension	**04/2018**	**Present**	**30.0% Blmbg. U.S. Aggregate, 43.5% Russell 3000 Index, 21.5% MSCI AC World ex USA (Net), 5.0% NCREIF Fund Index - ODCE (net)**
	03/2018	04/2018	30.0% Blmbg. U.S. Aggregate, 50.0% Russell 3000 Index, 15.0% MSCI AC World ex USA (Net), 5.0% NCREIF Fund Index - ODCE (net)
	12/2017	03/2018	30.0% Blmbg. U.S. Aggregate, 57.0% Russell 3000 Index, 8.0% MSCI EAFE (Net), 5.0% NCREIF Fund Index - ODCE (net)
	10/2010	12/2017	30.0% Blmbg. U.S. Aggregate, 54.0% Russell 3000 Index, 11.0% MSCI EAFE (Net), 5.0% NCREIF Fund Index - ODCE (net)
	01/2008	10/2010	30.0% Blmbg. U.S. Aggregate, 12.0% Russell 1000 Value Index, 12.0% Russell 1000 Growth Index, 19.0% Russell 3000 Index, 11.0% Russell 2000 Index, 11.0% MSCI EAFE (Net), 5.0% NCREIF Fund Index - ODCE (net)
	08/2003	01/2008	11.0% MSCI EAFE (Net), 35.0% Blmbg. U.S. Aggregate, 12.0% Russell 1000 Growth Index, 12.0% Russell 1000 Value Index, 19.0% Russell 3000 Index, 11.0% Russell 2000 Index
	07/2002	08/2003	12.0% MSCI EAFE (Net), 3.0% 90 Day U.S. Treasury Bill, 35.0% Blmbg. U.S. Aggregate, 10.0% Russell 1000 Growth Index, 14.0% Russell 1000 Value Index, 19.0% Russell 3000 Index, 7.0% Russell 2000 Index
	06/2002	07/2002	12.0% MSCI EAFE (Net), 3.0% 90 Day U.S. Treasury Bill, 35.0% Blmbg. U.S. Aggregate, 10.0% Russell 1000 Growth Index, 14.0% Russell 1000 Value Index, 19.0% Russell 3000 Index, 7.0% Russell 2000 Index
	01/2001	06/2002	15.0% MSCI EAFE (Net), 35.0% Blmbg. U.S. Aggregate, 10.0% Russell 1000 Growth Index, 14.0% Russell 1000 Value Index, 19.0% Russell 3000 Index, 7.0% Russell 2000 Index

Portfolio Dashboard

West Hartford POB ST Account — **As of August 31, 2022**

Historical Performance



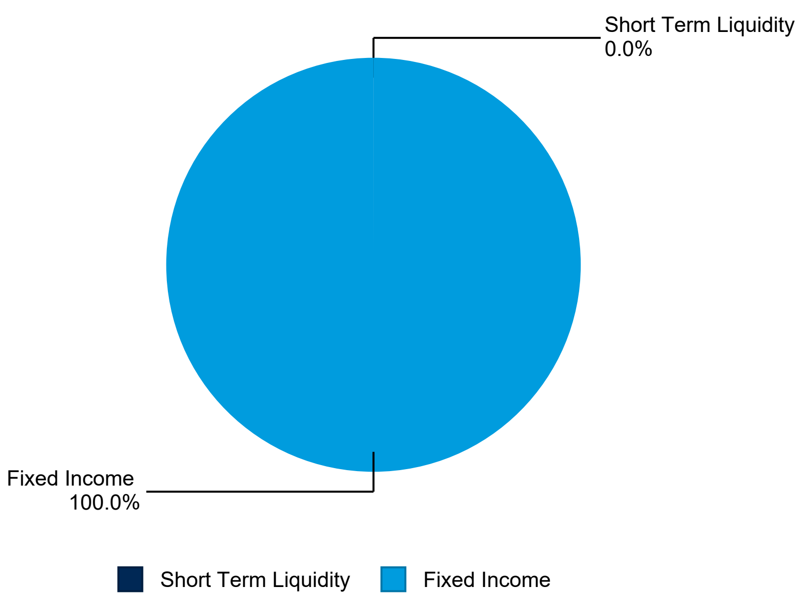
Summary of Cash Flows

	1 Month	QTD	YTD	Since Inception
Beginning Market Value	19,258,377	19,149,743	214,645,209	269,288,163
Net Contributions	-	-	-193,000,000	-247,000,000
Gain/Loss	-38,682	69,952	-2,425,514	-3,068,467
Ending Market Value	19,219,696	19,219,696	19,219,696	19,219,696

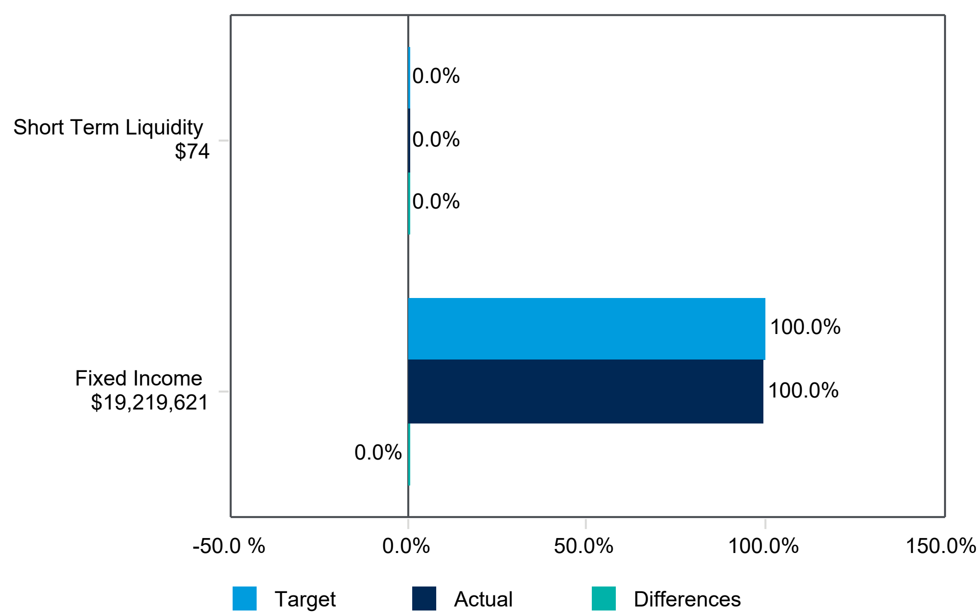
Current Benchmark Composition

From Date	To Date	
08/2021	Present	25.00% 90 Day U.S. Treasury Bill, 25.00% Blmbg. U.S. Credit 1-5 Year Index, 50.00% Blmbg. Short-term Government/Corporate

Portfolio Allocation



Actual vs. Target Allocations



Asset Allocation

West Hartford POB ST Account | As of August 31, 2022

	Asset Allocation ($)	Asset Allocation (%)	Target Allocation (%)	Differences (%)
West Hartford POB ST Account	**19,219,696**	**100.0**	**100.0**	**0.0**
Short Term Liquidity	**74**	**0.0**	**0.0**	**0.0**
AllSpring Govt Money Market Fund	74	0.0	0.0	0.0
Fixed Income	**19,219,621**	**100.0**	**100.0**	**0.0**
Baird Ultra Short Term Bond Fund Instl	9,612,384	50.0	50.0	0.0
Payden Limited Maturity Fund SI	4,691,738	24.4	25.0	-0.6
Vanguard Short Term Invst Grade Inst	4,915,499	25.6	25.0	0.6

Manager Performance

West Hartford POB ST Account | As of August 31, 2022

	Allocation		Performance(%)								
	Market Value ($)	%	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date	Manager Status
West Hartford POB ST Account	**19,219,696**	**100.0**	**0.4**	**-1.4**	**-1.7**	**-**	**-**	**-**	**-1.6**	**08/2021**	
POB ST Blended Benchmark			*0.2*	*-1.3*	*-1.5*	*-*	*-*	*-*	*-1.4*		
Short Term Liquidity	**74**	**0.0**	**0.3**	**0.3**	**0.3**	**-**	**-**	**-**	**0.3**	**08/2021**	
90 Day U.S. Treasury Bill			*0.2*	*0.4*	*0.4*	*0.6*	*1.1*	*0.6*	*0.3*		
AllSpring Govt Money Market Fund	**74**	**0.0**	**0.3**	**0.3**	**0.3**	**-**	**-**	**-**	**0.3**	**08/2021**	
90 Day U.S. Treasury Bill			*0.2*	*0.4*	*0.4*	*0.6*	*1.1*	*0.6*	*0.3*		
Fixed Income	**19,219,621**	**100.0**	**0.4**	**-1.6**	**-1.8**	**-**	**-**	**-**	**-1.7**	**08/2021**	
POB ST Fixed Income Benchmark			*0.2*	*-1.3*	*-1.5*	*-*	*-*	*-*	*-1.4*		
Baird Ultra Short Term Bond Fund Instl	**9,612,384**	**50.0**	**0.4**	**-0.1**	**-0.1**	**0.8**	**1.4**	**-**	**-0.1**	**08/2021**	**Maintain**
Blmbg. Short-term Government/Corporate			*0.2*	*-0.1*	*-0.2*	*0.7*	*1.3*	*0.9*	*-0.1*		
IM U.S. Short Term Investment Grade (MF) Median			0.3	-3.5	-4.0	0.3	1.1	1.0	-3.7		
Baird Ultra Short Term Bond Fund Instl Rank			47	6	6	9	15	-	6		
Payden Limited Maturity Fund SI	**4,691,738**	**24.4**	**0.6**	**-0.4**	**-0.5**	**0.9**	**1.5**	**1.2**	**-0.4**	**08/2021**	**Maintain**
90 Day U.S. Treasury Bill			*0.2*	*0.4*	*0.4*	*0.6*	*1.1*	*0.6*	*0.3*		
IM U.S. Short Term Investment Grade (MF) Median			0.3	-3.5	-4.0	0.3	1.1	1.0	-3.7		
Payden Limited Maturity Fund SI Rank			13	12	12	9	13	39	12		
Vanguard Short Term Invst Grade Inst	**4,915,499**	**25.6**	**0.1**	**-5.4**	**-6.3**	**0.0**	**1.2**	**1.6**	**-5.8**	**08/2021**	**Maintain**
Blmbg. U.S. Credit 1-5 Year Index			*0.1*	*-5.3*	*-6.1*	*0.0*	*1.3*	*1.7*	*-5.7*		
IM U.S. Short Term Investment Grade (MF) Median			0.3	-3.5	-4.0	0.3	1.1	1.0	-3.7		
Vanguard Short Term Invst Grade Inst Rank			73	97	97	69	43	10	97		

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Benchmark History

West Hartford POB ST Account | **As of August 31, 2022**

Account Name	From Date	To Date	Benchmark
West Hartford POB ST Account	08/2021	Present	25.0% 90 Day U.S. Treasury Bill, 25.0% Blmbg. U.S. Credit 1-5 Year Index, 50.0% Blmbg. Short-term Government/Corporate

Definitions & Disclosures

Please note: Due to rounding methodologies of various data providers, certain returns in this report might differ slightly when compared to other sources

REGULATORY DISCLOSURES

Offer of ADV Part 2A: Rule 204-3 under the Investment Advisers Act of 1940 requires that we make an annual offer to clients to send them, without charge, a written disclosure statement meeting the requirements of such rule. We will be glad to send a copy of our ADV Part 2A to you upon your written request to compliance@fiducient.com.

INDEX DEFINITIONS

- **Citigroup 3 Month T-Bill** measures monthly return equivalents of yield averages that are not marked to market. The Three-Month Treasury Bill Indexes consist of the last three three-month Treasury bill issues.
- **Ryan 3 Yr. GIC** is an arithmetic mean of market rates of $1 million Guaranteed Interest Contracts held for three years.
- **Bloomberg Barclays Treasury U.S. T-Bills-1-3 Month Index** includes aged U.S. Treasury bills, notes and bonds with a remaining maturity from 1 up to (but not including) 3 months. It excludes zero coupon strips.
- **Bloomberg Barclays Capital US Treasury Inflation Protected Securities Index** consists of Inflation-Protection securities issued by the U.S. Treasury.
- **Bloomberg Barclays Muni Index** is a rules-based, market-value-weighted index engineered for the long-term tax-exempt bond market. Bonds must be rated investment-grade by at least two ratings agencies.
- **Bloomberg Barclays Muni 1 Year Index** is the 1-year (1-2) component of the Municipal Bond index.
- **Bloomberg Barclays Muni 3 Year Index** is the 3-year (2-4) component of the Municipal Bond index.
- **Bloomberg Barclays Muni 5 Year Index** is the 5-year (4-6) component of the Municipal Bond index.
- **Bloomberg Barclays Muni 7 Year Index** is the 7-year (6-8) component of the Municipal Bond index.
- **Bloomberg Barclays Intermediate U.S. Gov't/Credit** is the Intermediate component of the U.S. Government/Credit index, which includes securities in the Government and Credit Indices. The Government Index includes treasuries and agencies, while the credit index includes publicly issued U.S. corporate and foreign debentures and secured notes that meet specified maturity, liquidity, and quality requirements.
- **Bloomberg Barclays U.S. Aggregate Index** covers the U.S. investment grade fixed rate bond market, with index components for government and corporate securities, mortgage pass-through securities, and asset-backed securities.
- **Bloomberg Barclays Global Aggregate ex. USD Indices** represent a broad-based measure of the global investment-grade fixed income markets. The two major components of this index are the Pan-European Aggregate and the Asian-Pacific Aggregate Indices. The index also includes Eurodollar and Euro-Yen corporate bonds and Canadian government, agency and corporate securities.
- **Bloomberg Barclays U.S. Corporate High Yield Index** covers the universe of fixed rate, non-investment grade debt. Eurobonds and debt issues from countries designated as emerging markets (sovereign rating of Baa1/BBB+/BBB+ and below using the middle of Moody's, S&P, and Fitch) are excluded, but Canadian and global bonds (SEC registered) of issuers in non-EMG countries are included.
- **JP Morgan Government Bond Index-Emerging Market (GBI-EM) Index** is a comprehensive, global local emerging markets index, and consists of regularly traded, liquid fixed-rate, domestic currency government bonds to which international investors can gain exposure.
- **The S&P 500** is a capitalization-weighted index of 500 stocks designed to measure performance of the broad domestic economy through changes in the aggregate market value of 500 stocks representing all major industries.
- **The Dow Jones Industrial Index** is a price-weighted average of 30 blue-chip stocks that are generally the leaders in their industry.
- **The NASDAQ** is a broad-based capitalization-weighted index of stocks in all three NASDAQ tiers: Global Select, Global Market and Capital Market.
- **Russell 3000** is a market-cap-weighted index which consists of roughly 3,000 of the largest companies in the U.S. as determined by market capitalization. It represents nearly 98% of the investable U.S. equity market.
- **Russell 1000** consists of the largest 1000 companies in the Russell 3000 Index.
- **Russell 1000 Growth** measures the performance of those Russell 1000 companies with higher P/B ratios and higher forecasted growth values.
- **Russell 1000 Value** measures the performance of those Russell 1000 companies with lower P/B ratios and lower forecasted growth values.
- **Russell Mid Cap** measures the performance of the 800 smallest companies in the Russell 1000 Index.
- **Russell Mid Cap Growth** measures the performance of those Russell Mid Cap companies with higher P/B ratios and higher forecasted growth values.
- **Russell Mid Cap Value** measures the performance of those Russell Mid Cap companies with lower P/B ratios and lower forecasted growth values.
- **Russell 2000** consists of the 2,000 smallest U.S. companies in the Russell 3000 index.
- **Russell 2000 Growth** measures the performance of the Russell 2000 companies with higher P/B ratios and higher forecasted growth values.
- **Russell 2000 Value** measures the performance of those Russell 2000 companies with lower P/B ratios and lower forecasted growth values.
- **Russell 2500** consists of the 2,500 smallest U.S. companies in the Russell 3000 index.
- **Russell 2500 Growth** measures the performance of the Russell 2500 companies with higher P/B ratios and higher forecasted growth values.
- **Russell 2500 Value** measures the performance of those Russell 2500 companies with lower P/B ratios and lower forecasted growth values.
- **MSCI World** captures large and mid-cap representation across 23 Developed Markets countries. With 1,645 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in each country.
- **MSCI ACWI (All Country World Index) ex. U.S. Index** captures large and mid-cap representation across 22 of 23 Developed Markets countries (excluding the United States) and 23 Emerging Markets countries. With 1,859 constituents, the index covers approximately 85% of the global equity opportunity set outside the US.
- **MSCI ACWI (All Country World Index) ex. U.S. Small Cap Index** captures small cap representation across 22 of 23 Developed Markets countries (excluding the US) and 23 Emerging Markets countries. With 4,368 constituents, the index covers approximately 14% of the global equity opportunity set outside the US.
- **MSCI EAFE** is an equity index which captures large and mid-cap representation across Developed Markets countries around the world, excluding the US and Canada. With 930 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in each country.

- **MSCI EAFE Value** captures large and mid-cap securities exhibiting overall value style characteristics across Developed Markets countries around the world, excluding the US and Canada. The value investment style characteristics for index construction are defined using three variables: book value to price, 12-month forward earnings to price and dividend yield. With 507 constituents, the index targets 50% coverage of the free float- adjusted market capitalization of the MSCI EAFE Index.
- **MSCI EAFE Growth** captures large and mid-cap securities exhibiting overall growth style characteristics across Developed Markets countries around the world, excluding the US and Canada. The growth investment style characteristics for index construction are defined using five variables: long-term forward EPS growth rate, short-term forward EPS growth rate, current internal growth rate and long-term historical EPS growth trend and long-term historical sales per share growth trend. With 542 constituents, the index targets 50% coverage of the free float-adjusted market capitalization of the MSCI EAFE Index.
- **MSCI Emerging Markets** captures large and mid-cap representation across 23 Emerging Markets countries. With 836 constituents, the index covers approximately 85% of the free-float adjusted market capitalization in each country.
- **Consumer Price Index** is a measure of prices paid by consumers for a market basket of consumer goods and services. The yearly (or monthly) growth rates represent the inflation rate.
- **FTSE NAREIT Equity REITs Index** contains all Equity REITs not designed as Timber REITs or Infrastructure REITs.
- **S&P Developed World Property** defines and measures the investable universe of publicly traded property companies domiciled in developed markets. The companies in the index are engaged in real estate related activities, such as property ownership, management, development, rental and investment.
- **S&P Developed World Property x U.S.** defines and measures the investable universe of publicly traded property companies domiciled in developed countries outside of the U.S. The companies included are engaged in real estate related activities, such as property ownership, management, development, rental and investment.
- **Fund Specific Broad Real Asset Benchmarks:**
  - **DWS Real Assets:** 30%: Dow Jones Brookfield Infrastructure Index, 30%: FTSE EPRA/NAREIT Developed Index,15%: Bloomberg Commodity Index, 15%: S&P Global Natural Resources Index, 10%: Barclays U.S. Treasury Inflation Notes Total Return Index
  - **PIMCO Inflation Response Multi Asset Fund:** 45% Barclays U.S. TIPS, 20% Bloomberg Commodity Index, 15% JP Morgan Emerging Local Markets Plus, 10% Dow Jones Select REIT, 10% Bloomberg Gold Subindex Total Return
  - **Principal Diversified Real Assets:** 35% BBgBarc U.S. Treasury TIPS Index, 20% S&P Global Infrastructure Index NTR, 20% S&P Global Natural Resources Index NTR, 15% Bloomberg Commodity Index, and 10% FTSE EPRA/NAREIT Developed Index NTR
  - **Wellington Diversified Inflation H:** 50% MSCI ACWI Commodity Producers Index, 25% Bloomberg Commodity Index, and 25% Bloomberg Barclays US TIPS 1 – 10 Year Index
- **Bloomberg Commodity Index** is calculated on an excess return basis and reflects commodity futures price movements. The index rebalances annually weighted 2/3 by trading volume and 1/3 by world production and weight-caps are applied at the commodity, sector and group level for diversification.
- **HFRI Fund Weighted Composite Index** is a global, equal-weighted index of over 2,000 single-manager funds that report to HFR Database. Constituent funds report monthly net of all fees performance in US Dollar and have a minimum of $50 Million under management or a twelve (12) month track record of active performance. The HFRI Fund Weighted Composite Index does not include Funds of Hedge Funds.
- **The Alerian MLP Index** is the leading gauge of energy Master Limited Partnerships (MLPs). The float adjusted, capitalization-weighted index, whose constituents represent approximately 85% of total float-adjusted market capitalization, is disseminated real-time on a price-return basis (AMZ) and on a total-return basis.
- **The Adjusted Alerian MLP Index** is commensurate with 65% of the monthly returns of the Alerian MLP Index to incorporate the effect of deferred tax liabilities incurred by MLP entities.
- **Cambridge Associates U.S. Private Equity Index** is based on data compiled from more than 1,200 institutional-quality buyout, growth equity, private equity energy, and mezzanine funds formed between 1986 and 2015.
- **Cambridge Associates U.S. Venture Capital Index** is based on data compiled from over 1,600 institutional-quality venture capital funds formed between 1986 and 2015.
- **Vanguard Spliced Bloomberg Barclays US1-5Yr Gov/Cr Flt Adj Index:** Bloomberg Barclays U.S. 1–5 Year Government/Credit Bond Index through December 31, 2009; Bloomberg Barclays U.S. 1–5 Year Government/Credit Float Adjusted Index thereafter.
- **Vanguard Spliced Bloomberg Barclays US5-10Yr Gov/Cr Flt Adj Index:** Bloomberg Barclays U.S. 5–10 Year Government/Credit Bond Index through December 31, 2009; Bloomberg Barclays U.S. 5–10 Year Government/Credit Float Adjusted Index thereafter.
- **Vanguard Spliced Bloomberg Barclays US Agg Flt Adj Index:** Bloomberg Barclays U.S. Aggregate Bond Index through December 31, 2009; Bloomberg Barclays U.S. Aggregate Float Adjusted Index thereafter.
- **Vanguard Spliced Bloomberg Barclays US Long Gov/Cr Flt Adj Index:** Bloomberg Barclays U.S. Long Government/Credit Bond Index through December 31, 2009; Bloomberg Barclays U.S. Long Government/Credit Float Adjusted Index thereafter.
- **Vanguard Balanced Composite Index:** Made up of two unmanaged benchmarks, weighted 60% Dow Jones U.S. Total Stock Market Index (formerly the Dow Jones Wilshire 5000 Index) and 40% Bloomberg Barclays U.S. Aggregate Bond Index through May 31, 2005; 60% MSCI US Broad Market Index and 40% Bloomberg Barclays U.S. Aggregate Bond Index through December 31, 2009; 60% MSCI US Broad Market Index and 40% Bloomberg Barclays U.S. Aggregate Float Adjusted Index through January 14, 2013; and 60% CRSP US Total Market Index and 40% Blomberg Barclays U.S. Aggregate Float Adjusted Index thereafter.
- **Vanguard Spliced Intermediate-Term Tax-Exempt Index:** Bloomberg Barclays 1–15 Year Municipal Bond Index.
- **Vanguard Spliced Extended Market Index:** Dow Jones Wilshire 4500 Index through June 17, 2005; S&P Transitional Completion Index through September 16, 2005; S&P Completion Index thereafter.
- **Vanguard Spliced Value Index:** S&P 500 Value Index (formerly the S&P 500/Barra Value Index) through May 16, 2003; MSCI US Prime Market Value Index through April 16, 2013; CRSP US Large Cap Value Index thereafter.
- **Vanguard Spliced Large Cap Index:** Consists of MSCI US Prime Market 750 Index through January 30, 2013, and the CRSP US Large Cap Index thereafter.
- **Vanguard Spliced Growth Index:** S&P 500 Growth Index (formerly the S&P 500/Barra Growth Index) through May 16, 2003; MSCI US Prime Market Growth Index through April 16, 2013; CRSP US Large Cap Growth Index thereafter.
- **Vanguard Spliced Mid Cap Value Index:** MSCI US Mid Cap Value Index through April 16, 2013; CRSP US Mid Cap Value Index thereafter.
- **Vanguard Spliced Mid Cap Index:** S&P MidCap 400 Index through May 16, 2003; the MSCI US Mid Cap 450 Index through January 30, 2013; and the CRSP US Mid Cap Index thereafter.
- **Vanguard Spliced Mid Cap Growth Index:** MSCI US Mid Cap Growth Index through April 16, 2013; CRSP US Mid Cap Growth Index thereafter.
- **Vanguard Spliced Total Stock Market Index:** Dow Jones U.S. Total Stock Market Index (formerly known as the Dow Jones Wilshire 5000 Index) through April 22, 2005; MSCI US Broad Market Index through June 2, 2013; and CRSP US Total Market Index thereafter.
- **Vanguard Spliced Small Cap Value Index:** SmallCap 600 Value Index (formerly the S&P SmallCap 600/Barra Value Index) through May 16, 2003; MSCI US Small Cap Value Index through April 16, 2013; CRSP US Small Cap Value Index thereafter.

- **Vanguard Spliced Small Cap Index:** Russell 2000 Index through May 16, 2003; the MSCI US Small Cap 1750 Index through January 30, 2013; and the CRSP US Small Cap Index thereafter.
- **Vanguard Spliced Small Cap Growth Index:** S&P SmallCap 600 Growth Index (formerly the S&P SmallCap 600/Barra Value Index) through May 16, 2003; MSCI US Small Cap Growth Index through April 16, 2013; CRSP US Small Cap Growth Index thereafter.
- **Vanguard Spliced Total International Stock Index:** Consists of the Total International Composite Index through August 31, 2006; the MSCI EAFE + Emerging Markets Index through December 15, 2010; the MSCI AC USA IMI Index through June 2, 2013; and FTSE Global All Cap ex US Index thereafter. Benchmark returns are adjusted for withholding taxes.
- **Vanguard Spliced Developed Markets Index:** MSCI EAFE Index through May 28, 2013; FTSE Developed ex North America Index through December 20, 2015; FTSE Developed All Cap ex US Transition Index through May 31, 2016; FTSE Developed All Cap ex US Index thereafter. Benchmark returns are adjusted for withholding taxes.
- **Vanguard Spliced Emerging Markets Index:** Select Emerging Markets Index through August 23, 2006; MSCI Emerging Markets Index through January 9, 2013; FTSE Emerging Transition Index through June 27, 2013; FTSE Emerging Index through November 1, 2015; and FTSE Emerging Markets All Cap China A Transition Index thereafter. Benchmark returns are adjusted for withholding taxes.
- **Vanguard REIT Spliced Index:** MSCI US REIT Index adjusted to include a 2% cash position (Lipper Money Market Average) through April 30, 2009; MSCI US REIT Index through January 31, 2018; MSCI US Investable Market Real Estate 25/50 Transition Index through July 24, 2018; MSCI US Investable Market Real Estate 25/50 Index thereafter.

Additional:

- Equity sector returns are calculated by Russell and MSCI for domestic and international markets, respectively. MSCI sector definitions correspond to the MSCI GICS® classification (Global Industry Classification System); Russell uses its own sector and industry classifications.
- MSCI country returns are calculated by MSCI and are free float-adjusted market capitalization indices that are designed to measure equity market performance in each specific country.
- Currency returns are calculated using Bloomberg's historical spot rate indices and are calculated using the U.S. dollar as the base currency.
- The Index of Leading Economic Indicators, calculated by The Conference Board, is used as a barometer of economic activity over a range of three to six months. The index is used to determine the direction and stability of the economy. The composite index of leading indicators, which is derived from 10 leading indicators, helps to signal turning points in the economy and forecast economic cycles. The leading indicators are the following: average weekly hours, average weekly initial claims, manufacturers' new orders, both consumer and non-defense capital goods, vendor performance, building permits, stock prices, money supply (M2), the interest rate spread and the index of consumer expectations.
- S&P Target Date Indexes are constructed using a survey method of current target date investments with $100 million or more in assets under management. Allocations for each vintage are comprised of exchange-traded- funds that represent respective asset classes used in target date portfolios. The indexes are designed to represent a market consensus glide path.

DEFINITION OF KEY STATISTICS AND TERMS

- **Returns:** A percentage figure used when reporting historical average compounded rate of investment return. All returns are annualized if the period for which they are calculated exceeds one year.
- **Universe Comparison:** The universe compares the fund's returns to a group of other investment portfolios with similar investment strategies. The returns for the fund, the index and the universe percentiles are displayed. A percentile ranking of 1 is the best, while a percentile ranking of 100 is the worst. For example, a ranking of 50 indicates the fund outperformed half of the universe. A ranking of 25 indicates the fund was in the top 25% of the universe, outperforming 75%.
- **Returns In Up/Down Markets:** This measures how the fund performed in both up and down markets. The methodology is to segregate the performance for each time period into the quarters in which the market, as defined by the index, was positive and negative. Quarters with negative index returns are treated as down markets, and quarters with positive index returns are treated as up markets. Thus, in a 3 year or 12 quarter period, there might be 4 down quarters and 8 up quarters. A simple arithmetic average of returns is calculated for the fund and the index based on the up quarters. A simple arithmetic average of returns is calculated for the fund and the index based on the down quarters. The up market capture ratio is the ratio of the fund's return in up markets to the index. The down market capture ratio is the ratio of the fund's return in down markets to the index. Ideally, the fund would have a greater up market capture ratio than down market capture ratio.
- **Standard Deviation:** Standard deviation is a statistical measure of the range of performance within which the total returns of a fund fall. When a fund has a high standard deviation, the range of performance is very wide, meaning there is a greater volatility. Approximately 68% of the time, the total return of any given fund will differ from the average total return by no more than plus or minus the standard deviation figure. Ninety-five percent of the time, a fund's total return will be within a range of plus or minus two times the standard deviation from the average total return. If the quarterly or monthly returns are all the same the standard deviation will be zero. The more they vary from one another, the higher the standard deviation. Standard deviation can be misleading as a risk indicator for funds with high total returns because large positive deviations will increase the standard deviation without a corresponding increase in the risk of the fund. While positive volatility is welcome, negative is not.
- **R-Squared**: This reflects the percentage of a fund's movements that are explained by movements in its benchmark index. An R-squared of 100 means that all movements of a fund are completely explained by movements in the index. Conversely, a low R-squared indicates very few of the fund's movements are explained by movements in the benchmark index. R-squared can also be used to ascertain the significance of a particular beta. Generally, a higher R-squared will indicate a more reliable beta figure. If the R-squared is lower, then the beta is less relevant to the fund's performance. A measure of diversification, R-squared indicates the extent to which fluctuations in portfolio returns are explained by market. An R-squared = 0.70 implies that 70% of the fluctuation in a portfolio's return is explained by the fluctuation in the market. In this instance, overweighting or underweighting of industry groups or individual securities is responsible for 30% of the fund's movement.
- **Beta**: This is a measure of a fund's market risk. The beta of the market is 1.00. Accordingly, a fund with a 1.10 beta is expected to perform 10% better than the market in up markets and 10% worse that the market in down markets. It is important to note, however, a low fund beta does not imply the fund has a low level of volatility; rather, a low beta means only that the fund's market-related risk is low. Because beta analyzes the market risk of a fund by showing how responsive the fund is to the market, its usefulness depends on the degree to which the markets determine the fund's total risk (indicated by R-squared).
- **Alpha:** The Alpha is the nonsystematic return, or the return that can't be attributed to the market. It can be thought of as how the manager performed if the market's return was zero. A positive alpha implies the manager added value to the return of the portfolio over that of the market. A negative alpha implies the manager did not contribute any value over the performance of the market.
- **Sharpe Ratio:** The Sharpe ratio is the excess return per unit of total risk as measured by standard deviation. Higher numbers are better, indicating more return for the level of risk experienced. The ratio is a fund's return minus the risk-free rate of return (30-day T-Bill rate) divided by the fund's standard deviation. The higher the Sharpe ratio, the more reward you are receiving per unit of total risk. This measure can be used to rank the performance of mutual funds or other portfolios.
- **Treynor Ratio:** The Treynor ratio measures returns earned in excess of that which could have been earned on a riskless investment per each unit of market risk. The ratio relates excess return over the risk-free rate to the additional risk taken; however, systematic risk is used instead of total risk. The Treynor ratio is similar to the Sharpe ratio, except in the fact that it uses the beta to evaluate the returns rather than the standard deviation of portfolio returns. High values mean better return for risk taken.

- **Tracking Error:** Tracking error measures the volatility of the difference in annual returns between the manager and the index. This value is calculated by measuring the standard deviation of the difference between manager and index returns. For example, a tracking error of +/- 5 would mean there is about a 68% chance (1 standard deviation event) that the manager's returns will fall within +/- 5% of the benchmark's an return.
- **Information Ratio:** The information ratio is a measure of the consistency of excess return. This value is determined by taking the annualized excess return over a benchmark (style benchmark by default) and dividin the standard deviation of excess return.
- **Consistency:** Consistency shows the percent of the periods the fund has beaten the index and the percent of the periods the index has beat the fund. A high average for the fund (e.g., over 50) is desirable, indicating the fund has beaten the index frequently.
- **Downside Risk:** Downside risk is a measure similar to standard deviation but focuses only on the negative movements of the return series. It is calculated by taking the standard deviation of the negative quarterly set of returns. The higher the factor, the riskier the product.
- **M-Squared:** M-squared, or the Modigliani risk-adjusted performance measure is used to characterize how well a portfolio's return rewards an investor for the amount of risk taken, relative to that of some benchmark portfolio and to the risk-free rate.

DEFINITION OF KEY PRIVATE EQUITY TERMS

- **PIC (Paid in Capital):** The amount of committed capital that has been transferred from the limited partner to the general partner.
- **TVPI (Total Value to Paid in Capital):** Money returned to limited partners plus the fund's unrealized investments, divided by money paid-in to the partnership. The TVPI should equal RVPI plus DPI.
- **DPI (Distribution to Paid In Capital):** Money returned (distributions) to limited partners divided by money paid in to the partnership. Also called cash-on-cash multiple.
- **RVPI (Residual Value to Paid In Capital):** The value of a fund's unrealized investments divided by money paid-in to the partnership.
- **Internal rate of return (IRR):** This is the most appropriate performance benchmark for private equity investments. It is a time-weighted return expressed as a percentage. IRR uses the present sum of cash drawdowns (money invested), the present value of distributions (money returned from investments) and the current value of unrealized investments and applies a discount.
- **Commitment:** Every investor in a private equity fund commits to investing a specified sum of money in the fund partnership over a specified period of time. The fund records this as the limited partnership's capital commitment. The sum of capital commitments is equal to the size of the fund.
- **Capital Distribution:** These are the returns that an investor in a private equity fund receives. It is the income and capital realized from investments less expenses and liabilities. Once a limited partner has had their cost of investment returned, further distributions are actual profit. The partnership agreement determines the timing of distributions to the limited partner. It will also determine how profits are divided among the limited partners and general partner.
- **Carried Interest:** The share of profits that the fund manager is due once it has returned the cost of investment to investors. Carried interest is normally expressed as a percentage of the total profits of the fund.
- **Co-Investment**: Co-Investments are minority investments made alongside a private equity investor in an LBO, a recapitalization, or an expansion capital transaction. It is a passive, non-controlling investment, as the private equity firm involved will typically exercise control and perform monitoring functions.
- **General Partner (GP):** This can refer to the top-ranking partners at a private equity firm as well as the firm managing the private equity fund.
- **GP Commitments:** It is normal practice for the GP managing a private equity fund to also make a financial commitment to the fund on the same basis as the LPs in the fund, and this is seen as an important factor driving the alignment of GP and LP interests. The historic benchmark for GP commitments has been 1% of the total fund size, but this is by no means universal, and many GPs commit significantly larger amounts. Furthermore, there has been a marked trend towards GPs making larger commitments to their funds over recent years.
- **Leveraged Buy-Out (LBO):** The acquisition of a company using debt and equity finance.
- **Limited Partner (LP):** Institutions or high-net-worth individuals/sophisticated investors that contribute capital to a private equity fund.
- **Public Market Equivalent (PME):** Performance measure used to evaluate performance relative to the market. It is calculated as the ratio of the discounted value of the LP's inflows divided by the discounted value of outflows, with the discounting performed using realized market returns.
- **Primaries:** An original investment vehicle that invests directly into a company or asset.

VALUATION POLICY

Fiducient Advisors does not engage an independent third-party pricing service to value securities. Our reports are generated using the security prices provided by custodians used by our clients. Our custodial pricing hierarchy is available upon request. If a client holds a security not reported by the first custodian within the hierarchy, the valuation is generated from the next custodian within the hierarchy, and so forth. Each custodian uses pricing services from outside vendors, where the vendors may generate nominally different prices. Therefore, this report can reflect minor valuation differences from those contained in a custodian's report. In rare instances where FA overrides a custodial price, prices are taken from Bloomberg.

REPORTING POLICY

This report is intended for the exclusive use of the client listed within the report. Content is privileged and confidential. Any dissemination or distribution is strictly prohibited. Information has been obtained from a variety of sources believed to be reliable though not independently verified. Any forecast represents median expectations and actual returns, volatilities and correlations will differ from forecasts. Please note each client has customized investment objectives and constraints and the investment strategy for each portfolio is based on a client-specific asset allocation model. Past performance does not indicate future performance and there is a possibility of a loss. Performance calculated net of investment fees. Certain portfolios presented may be gross of Fiducient Advisors' fees and actual performance would be reduced by investment advisory fees. This report does not represent a specific investment recommendation. Please consult with your advisor, attorney, and accountant, as appropriate, regarding specific advice.

Custodian reports are the reports that govern the account. There will be different account values between Fiducient Advisors' reports and the custodian reports based on whether the report utilizes trade date or date to calculate value. Additionally, difference between values contained on reports may be caused by different accrued income values. Any forecasts represent future expectations and actual returns, volatilities and will differ from forecasts. This report does not represent a specific investment recommendation. Please consult with your advisor, attorney, and accountant, as appropriate, regarding specific advice. Past perfor not indicate future performance and there is a possibility of a loss.

Manager performance for mutual funds and ETFs is based on NAV and provided by Lipper. Performance for non-mutual fund or ETF investments is based on the returns provided by managers, calculations based on a manager statement, or calculations based on a statement or data from the client's custodian. Unless specified otherwise, all returns are net of individual manager fees, represent total returns and are annualized for periods greater than one year. The deduction of fees produces a compounding effect that reduces the total rate of return over time. As an example, the effect of investment management fees on the total value of a client's portfolio assuming (a) quarterly fee assessment, (b) $1,000,000 investment, (c) portfolio return of 8% a year, and (d) 0.50% annual investment advisory fee would be $5,228 in the first year, and cumulative effects of $30,342 over five years and $73,826 over ten years. Additional information on advisory fees charged by Fiducient Advisors are described in Part 2 of the Form ADV.

OTHER

By regulation, closed-end funds utilizing debt for leverage must report their interest expense, as well as their income tax expense, as part of their total expense ratio. To make for a useful comparison between closed-end funds and both open-end funds and exchange-traded funds, adjusted expense ratios excluding interest and income tax expenses are utilized for closed-end funds within this report. See disclosure on closed-end fund fact sheets for information regarding the total expense ratio of each closed-end fund.

Please advise us of any changes in your objectives or circumstances.

CUSTODIAN STATEMENTS

Please remember to review the periodic statements you receive from you custodian. If you do not receive periodic statements from your custodian or notice issues with the activity reported in those statements, please contact FA or your custodian immediately.